



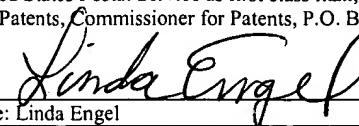
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Ogata et al. Examiner: M. Savage  
Serial No.: 09/600,203 Group Art Unit: 1724  
Filed: 8/9/00 Docket: 13438.7USWO  
Confirmation No.: 7904 Notice of Allow.  
Due Date: 12/1/04 Date:  
Title: FILTER CARTRIDGE

CERTIFICATE UNDER 37 CFR 1.8:

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By:   
Name: Linda Engel

Mail Stop Appeal Brief-Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**23552**  
PATENT TRADEMARK OFFICE

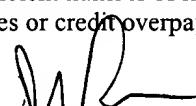
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We are transmitting herewith the attached:

- Transmittal Sheet in duplicate containing Certificate of Mailing
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Please consider this a PETITION FOR EXTENSION OF TIME for a sufficient number of months to enter these papers or any future reply, if appropriate. Please charge any additional fees or credit overpayment to Deposit Account No. 13-2725. A duplicate of this sheet is enclosed.

MERCHANT & GOULD P.C.  
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By:   
Name: Douglas P. Mueller  
Reg. No.: 30,300  
DPM/le



S/N 09/600,203

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	OGATA et al.	Examiner:	M. Savage
Serial No.:	09/600,203	Group Art Unit:	1724
Filed:	August 9, 2000	Docket No.:	13438.7USWO
Title:	FILTER CARTRIDGE		
Customer No.	23552		

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CERTIFICATE UNDER 37 CFR 1.8:

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By: *Linda Engel*  
Name: Linda Engel

APPELLANTS' BRIEF ON APPEAL

Mail Stop Appeal Brief-Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

This Brief is presented in support of the Notice of Appeal filed October 1, 2004, from the final rejection of claims 1-4 and 6-12 of the above-identified application, as set forth in the Office Action mailed July 14, 2004.

A check for \$340.00 to cover the required fee for filing this Brief is enclosed. If an additional fee is required, please charge Deposit Account No. 13-2725.

11/24/2004 HVUDNG1 00000080 09600203

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## **I. REAL PARTY OF INTEREST**

The Real Party of Interest is Chisso Corporation of Osaka, Japan.

## **II. RELATED APPEALS AND INTERFERENCES**

There are no related appeals or interferences known to appellants, the appellants' legal representative, or assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal for the above-referenced patent application.

### **III. STATUS OF CLAIMS**

Claims 1-4 and 6-16 are pending. Claim 1 is the only independent claim. Claims 13-16 are withdrawn from consideration.

Rejected claims 1-4 and 6-12 are the subject of this Appeal and are presented in the Claims Appendix.

Claims 1-3, 6, and 10-12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Japanese Patent document JP 4-45811 (JP '811) in view of U.S. Patent No. 6,090,731 (Pike). Claim 4 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over JP '811 in view of Pike, and further in view of EP 831,161 (EP '161). Claims 7-9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over JP '811 in view of Pike, and further in view of Japanese Patent document JP 1-115423 (JP '423).

Below is a summary of the status of all claims in the proceeding after the entry of the Amendment.

1-4.	Rejected
5.	Canceled
6-12.	Rejected
13-16.	Withdrawn

**IV. STATUS OF AMENDMENTS AFTER FINAL REJECTION**

A final Office Action in this case was mailed on July 14, 2004. No other amendment was filed after the July 14, 2004 Office Action.

## V. SUMMARY OF THE CLAIMED SUBJECT MATTER

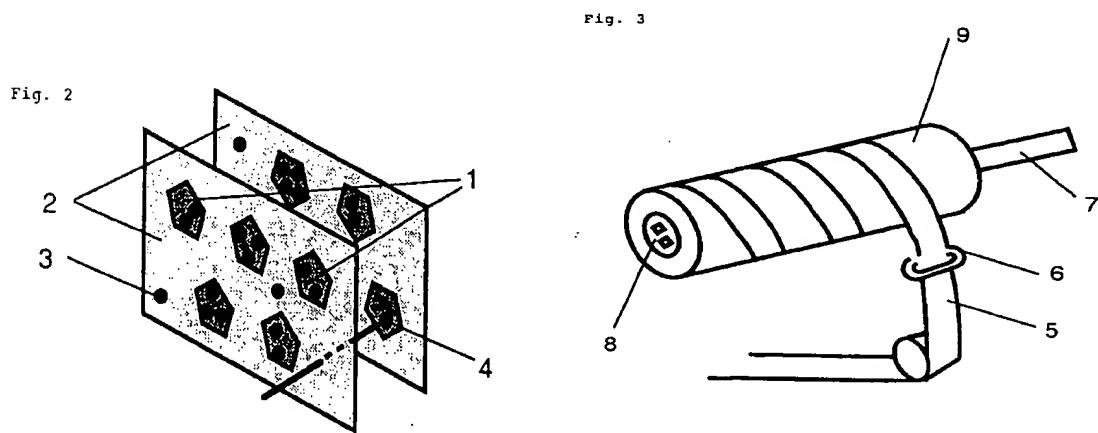
A summary of the claimed invention follows. The summary includes references to an embodiment disclosed in the specification.

Independent claim 1 is directed to a filter cartridge. *See Figures 2 and 3 (reproduced below in Illustration A) for illustrations of the present invention according to claim 1.*

The filter cartridge comprising a strip, spun bonded non-woven fabric (5), the fabric (5) comprises a thermoplastic fiber in which at least a part of fiber intersections is thermally adhered (1) by a thermal compression bonding method. *See Figure 1 and page 19, lines 9-20.* The strip, spun bonded non-woven fabric is wound around a perforated cylinder (8) in a twill form. *See Figure 2 and page 22, lines 8-21.*

Referring to the figures, Figure 2 illustrates the ability of a strip, spun bonded non-woven fabric (5) of the present invention to trap foreign matter (3, 4). Figure 2 shows a couple of layers of strip, spun bonded non-woven fabric. In Figure 2, the thermal compression bonding (1) depicted on each layer is an embossing pattern. *See page 19, lines 9-20.* Figure 3 illustrates a mechanism of winding the strip, spun bonded non-woven fabric (5) of the present invention. *See page 22, lines 8-21.*

### Illustration A: FIGS. 2 and 3 of the Application



By using strip, spun bonded non-woven fabric with a wound filter, a highly effective filter can be obtained. In particular, the strip, spun bound fibers run along the length of the fabric and create holes that are long and narrow relative to strips constructed of short fibers. *See, e.g.,* Figure 15. As a result, only particles with a relatively small size are able to pass through the holes. *See page 16, line 20-27.*

Moreover, by creating multiple layers of the spun bonded non-woven fabric by winding, the present invention creates a effective deep layer filtering strucutre that allows foreign particles to be trapped within the filter. *See page 19, lines 9-20.*

## **VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

Claims 1-3, 6, and 10-12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Japanese Patent document JP 4-45811 (JP '811) in view of U.S. Patent No. 6,090,731 (Pike).

Claim 4 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over JP '811 in view of Pike, and further in view of EP 831,161 (EP '161). Claims 7-9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over JP '811 in view of Pike, and further in view of Japanese Patent document JP 1-115423 (JP '423).

The issue presented for review is whether claim 1 is patentable over JP '811 in view of Pike. Claims 2-4 and 6-12 depend from claim 1 and stand or fall with claim 1. For purposes of this appeal alone, Appellants are not contesting the applicability of EP '161 to the features of claim 4, nor the applicability of JP '423 to the features of claims 7-9.

## VII. ARGUMENT

### A. Claim 1 is patentable over JP '811 in view of Pike

Claims 1-3, 6, and 10-12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Japanese Patent document JP 4-45811 (JP '811) in view of U.S. Patent No. 6,090,731 (Pike).

Claim 1 requires a filter cartridge. The filter cartridge comprises a strip, spun bonded non-woven fabric. The fabric comprises a thermoplastic fiber in which at least a part of fiber intersections is thermally adhered by a thermal compression bonding method. The strip, spun bonded non-woven fabric is wound around a perforated cylinder in a twill form.

JP '811 discloses a filter cartridge prepared by winding a non-woven fabric, formed from *divided staple fibers*, around a perforated cylinder. Accordingly, JP '811 fails to teach or suggest the use of strip, spun bonded non-woven fabric. JP '811 also does not teach or suggest the use of thermoplastic fibers having fiber intersections that are at least partially adhered. In fact, JP '811 discloses a configuration similar to that discussed in Comparative Example 3 of the present specification. As seen at page 46 of the specification, Comparative Example 3 exhibited an undesirable pressure drop and a short effective life when compared to the filter cartridge of the present invention.

Pike discloses a *sheet filter medium* including a spun bond non-woven fabric. *See* col. 3, lines 61-65. Such a sheet filter medium has a significantly shorter filter life than the filter of the present invention. *See* page 3 of the Yamaguchi Declaration comparing Examples 4 and 11 of the present invention with the sheet filter medium of Pike. Moreover, Pike does not teach thermal compression bonding. Rather, Pike teaches that the filter media is through-air bonded. *See* column 3, lines 61 - 63 of Pike. Not only does Pike not use thermal compression bonding; Pike actually teaches away from such a use by teaching that calender bonding (a form of thermal compression bonding) a spunbond filter media causes the filter to have significantly lower efficiencies than that of a filter produced with microfiber filter media. *See* column 2, lines 8-13.

1. JP '811 and Pike are Non-analogous References

This combination would not be obvious to one of skill in the art because the filter cartridge of JP '811 is a wound filter cartridge, while the filter cartridge of Pike is a sheet filter medium. Wound filters are formulated for use in deep filtration while sheet filter mediums are formulated for use in surface filtration (also known as surface straining). The mechanisms of deep filtration and surface filtration are significantly different, with deep filtration structures being much more complex than those of surface filtration. *See* page 51 of the Filters and Filtration Handbook excerpt, which was provided to the Examiner with the Amendment and Response filed on October 4, 2003. Accordingly, one of ordinary skill in the art would not seek to combine structures for deep filtration with those of surface filtration.

2. No Motivation to Combine JP '811 and Pike

In addition, there is no motivation to combine the references found in the prior art. The mere fact that the prior art could be modified in the manner proposed by the examiner does not make the modification obvious unless the prior art suggests the desirability of the modification. *Ex parte Dussaud*, 7 U.S.P.Q.2d 1818, 1820 (BPAI 1988). In *Dussaud*, the Examiner argued that a first reference teaching a single roller for manufacturing straight line elastic strips for a diaper could be modified by a second reference teaching a pair of rollers for manufacturing a curvilinear elastic strip to obtain a single roller structure capable of manufacturing curvilinear elastic strips. The Board of Patent Appeals and Interferences, however, found that the Examiner's modification was based on hindsight, and rejected the assertion that there was any motivation to combine the cited references. *Id.* Similarly, in the present application, there is no motivation to combine the cited references.

The Examiner argues that it would have been obvious to modify the "JP '811 filter so as to have included long thermoplastic fibers with fiber intersections that were adhered as suggested by Pike et al in order to provide strips of filter media having high filtration efficiency and high physical strength properties." *See* page 2 of July 14, 2004 Office Action. Although Pike does suggest that calendered sheet filter media exhibit good strength properties, Pike further states that "the filter efficiency of these spunbound filter media is, in general, significantly lower than that of microfiber filter media." Column 2, lines 8-13. By these statements, Pike clearly teaches away

from using thermal compression bonding, as recited in claim 1. Thus, contrary to the Examiner's assertion, it would not be obvious to modify JP '811 to "provide strips of filter media having high filtration efficiency and high physical strength properties." Indeed, in view of the teaching of Pike, one would expect "significantly lower" filtration efficiency if JP '811 was modified by Pike et al. to include thermal compression bonding.

In addition, Pike et al. does not refer to or suggest that the spunbond filter media could be used in a filter cartridge—rather it only discusses spunbond filter media as a sheet filter.

For all these reasons, there would be no motivation to combine JP '811 with Pike et al. as suggested by the Examiner to arrive at the present invention. Accordingly, Appellants respectfully request that the rejection be withdrawn.

### 3. The Unexpected Results Rebut the Assertion of Obviousness

A *prima facie* case of obviousness is rebuttable by proof that the claimed invention possesses unexpectedly advantageous or superior properties. *See In re Wiechert*, 370 F.2d 927, 962, 152 U.S.P.Q. 247, 250 (C.C.P.A. 1967) (a 7-fold improvement of activity over the prior art was sufficient to rebut *prima facie* obviousness based on close structural similarity).

Even if the Pike and JP '811 references were combined, they would not be expected to achieve the properties of the claimed invention. At most, the properties would be expected to be somewhere inbetween the inventions of Pike and JP '811—not greatly exceeding them, as the present claimed invention does.

#### (a) The Filter of the Present Invention Outperforms the Filter in Pike

A comparative experiment was performed between the filter cartridges used for examples 4 and 11 of the present invention and that of Pike. The results and experimentation are explained in detail in the Yamaguchi Declaration. In summary, the filter life of the present invention was much longer than that of Pike, which is an unexpected result. *See* page 3 of the Yamaguchi Declaration. In particular, the filter life of Example 11 of the present invention is over 200 times longer than that of Example 5 in Pike.

(b) The Filter of the Present Invention Outperforms the Filter in JP '811

Moreover, Appellants respectfully point out that the present invention also exhibits superior properties to JP '811. The filter cartridge described for Comparative Example 3 of the present application (see page 46 of the specification) is analogous to that of JP '811. The initial trapped particle diameters of Comparative Example 3 and Example 20 are 10.1 and 10.0  $\mu\text{m}$ , respectively, which are almost identical. *See Table 2 of the specification.* However, the initial pressure loss, trapped particle diameter in 0.2 MPa, and filter life of Comparative Example 3 are 0.010 MPa, 13  $\mu\text{m}$ , and 80 minutes, respectively. Whereas, the initial pressure loss, trapped particle diameter in 0.2 MPa, and filter life of Example 20 are 0.003 MPa, 10  $\mu\text{m}$ , and 225 minutes, respectively. These characteristics represent unexpected results.

(c) The Filter of the Present Invention Provides Unexpected Results by Substantially Outperforming the Filters in Pike and JP '811

Thus, Appellants have shown unexpected results between *both* references cited by the Examiner. Accordingly, Appellants respectfully submit that the unexpected results of the present invention clearly rebut any *prima facie* case of obviousness established by the references, both individually and in combination. Even if the Pike and JP '811 references were combinable, they would not lead one to expect the properties achieved by the claimed invention. At most, the properties would be expected to be somewhere inbetween the inventions of Pike and JP '811--not greatly exceeding them, as the present claimed invention does. It is legally incorrect to assume that the unexpected results of the present claimed invention would be inherent once the combination of JP '811 and Pike is made. *See Ex parte Ohsaka, 2 U.S.P.Q.2d 1460, 1462 (BPAI 1987).*

The filter of the present invention greatly outperforms the filters of both JP '811 and Pike. The advantages of the present invention are far beyond those one would expect when combining the features of the two references, and, thus, the combination of those references to achieve such a significant improvement would not be obvious.

**B. Conclusion**

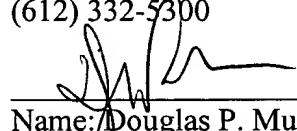
Appellants submits that the rejections of claims 1-3, 6, and 10-12 should be withdrawn in view of the non-analogous nature of the references, the lack of motivation for combining the separate elements of the two references, and the unexpected results that further rebut obviousness. A notice of allowance is respectfully requested.

In addition, Appellants note that rejected claims 4 and 7-9 depend from claim 1, and are believed allowable for at least the same reasons as provided above for claim 1.

Respectfully submitted,

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Date: \_\_\_\_\_

  
\_\_\_\_\_  
Name: Douglas P. Mueller  
Reg. No.: 30,300  
DPM/DTL

## **CLAIMS APPENDIX:**

### **Claims involved in the appeal**

1. A filter cartridge comprising a strip, spun bonded non-woven fabric, the fabric comprising a thermoplastic fiber in which at least a part of fiber intersections is thermally adhered by a thermal compression bonding method, wherein the strip, spun bonded non-woven fabric is wound around a perforated cylinder in a twill form.
2. The filter cartridge as described in claim 1, wherein the thermoplastic fiber constituting the spun bonded non-woven fabric is a thermally adhesive composite fiber comprising a low melting point resin and a high melting point resin, the difference in a melting point of both the resins being 10°C or more.
3. The filter cartridge as described in claim 2, wherein the low melting point resin is linear low density polyethylene and the high melting point resin is polypropylene.
4. The filter cartridge as described in claim 1, wherein the spun bonded non-woven fabric is bonded by thermal compression by means of a heat embossing roll.
6. The filter cartridge as described in claim 1, wherein the strip, spun bonded non-woven fabric is twisted.
7. The filter cartridge as described in claim 1, wherein the strip, spun bonded non-woven fabric is formed into a pleated matter having 4 to 50 pleats and wound around a perforated cylinder in a twill form.
8. The filter cartridge as described in claim 7, wherein at least a part of the pleats of the above pleated matter is non-parallel.
9. The filter cartridge as described in claim 7, wherein the pleated matter has a void rate of 60 to 95 %.
10. The filter cartridge as described in claim 1, wherein the filter cartridge has a void rate of 65 to 85 %.

11. The filter cartridge as described in claim 1, wherein the spun bonded non-woven fabric has a slit width of 0.5 cm or more, and a product of the slit width (cm) and the basis weight ( $\text{g}/\text{m}^2$ ) is 200 or less.
12. The filter cartridge as described in claim 1, wherein the filter cartridge has a ratio of trapped particle diameter in 0.2 MPa/initial trapped particle diameter being 1 - 1.13 when initial trapped particle diameter is 7.1 to 30  $\mu\text{m}$ .

## **EVIDENCE APPENDIX**

### **A. OFFICE ACTIONS AND AMENDMENTS/RESPONSES**

A Copy of this Office Action is attached.

1. Office Action dated July 14, 2004.

### **B. REFERENCES RELIED UPON BY THE EXAMINER**

Copies of these references are attached.

1. Japanese Patent document JP 4-45811 (JP '811)
2. U.S. Patent No. 6,090,731 (Pike)

### **C. REFERENCES CITED BY APPELLANTS**

Copies of these references are attached.

1. Yamaguchi Declaration under 37 CFR § 1.132
2. Filters and Filtration Handbook excerpt

### **D. CASES CITED IN THE BRIEF**

Copies of these cases are attached.

1. *Ex parte Dussaud*, 7 U.S.P.Q.2d 1818, 1820 (BPAI 1988)
2. *In re Wiechert*, 370 F.2d 927, 962, 152 U.S.P.Q. 247, 250 (C.C.P.A. 1967)
3. *Ex parte Ohsaka*, 2 U.S.P.Q.2d 1460, 1462 (BPAI 1987)

**RELATED PROCEEDINGS APPENDIX**

None.



## UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILED DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/600,203	08/09/2000	Satoshi Ogata	13409-1USWO 13438,7USW0✓	7904
23552	7590	07/14/2004	EXAMINER	
MERCHANT & GOULD PC P.O. BOX 2903 MINNEAPOLIS, MN 55402-0903			SAVAGE, MATTHEW O	

JPM

ART UNIT	PAPER NUMBER
1724	

DATE MAILED: 07/14/2004

FR 2mo: Sept 14, 2004  
FR 3mo/PTA: Oct 14, 2004  
FR 4mo: Jan 14, 2005 ✓

Please find below and/or attached an Office communication concerning this application or proceeding.

PROLAW



## Office Action Summary

Application No. 09/600,203	Applicant(s) OGATA ET AL.	
	Examiner Matthew O Savage	Art Unit 1724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM  
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) Responsive to communication(s) filed on 26 April 2004.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) Claim(s) 1-4 and 6-16 is/are pending in the application.
  - 4a) Of the above claim(s) 13-16 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-12 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, and 6, and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 4-45811 in view of Pike et al.

With respect to claim 1, JP '811 discloses a strip, and a non-woven fabric 3 wound around a perforated cylinder 4 in twill form (see FIGS. 1 and 2). As best understood, JP '811 fails to specify long thermoplastic fibers prepared using a spun bonding method with fiber intersections that are thermally adhered. Pike et al disclose spun bonded non woven fabric prepared using a spun bonding method (see example 1 in columns 10-11) with fiber intersections that are thermally adhered by a hot blast (see example 1) and suggests that such an arrangement has high filtration efficiency and physical strength (see the first full paragraph of col. 3). It would have been obvious to have modified the JP '811 filter so as to have included long thermoplastic fibers with fiber intersections that were adhered as suggested by Pike et al in order to provide strips of filter media having high filtration efficiency and high physical strength properties. Pike et al fails to specify using thermal compression bonding for bonding fiber intersections of the media. Pike et al disclose that thermal compression bonding is known in the art. Pike et al teach suggests that thermal compression bonding yields non-uniform porosity and lower filtration efficiency than that produced by through air bonding (see from line 63 of col. 1 to line 22 of col. 2). It would have been obvious to

have modified the combination of '811 and Pike et al so as to have included thermal compression bonding in place of through air bonding in the case that a lower filtration efficiency could be tolerated and in the case that thermal compression bonding equipment was readily available.

Regarding claim 2, Pike et al disclose a thermoplastic adhesive composite fibers including a low melting point resin and a high melting point resin with a difference in melting point be 10 degrees C or more (see example 1).

Concerning claim 3, Pike et al disclose the low melting point resin as being linear low density polyethylene and the high melting point resin as being polypropylene (see example 1).

Concerning claim 6, JP '811 discloses the strip as being twisted (see the abstract).

Regarding claim 10, JP '811 and Pike et al fail to specify the recited void rate, however, such a modification would have been obvious in order to optimize the filter for a particular application.

Concerning claim 11, JP '811 and Pike et al fail to specify the slit width and product of the slit width and basis weight, however, such a modification would have been obvious in order to optimize the filter for a particular application.

As to claim 12, JP '811 and Pike et al fail to specify the recited ratio, however, such a modification in filter structure, i.e., selecting the fiber diameter and filter density to achieve such a ratio would have been obvious to one skilled in the art in order to optimize the filter for a particular application.

Claim 4 is rejected under 35 U.S. C. 103(a) as being unpatentable over over JP 4-45811 in view of Pike et al as applied to claim 1 above, and further in view of EP 831,161.

As to claim 4, Pike et al disclose that it is known in the art to bond an analogous fabric by thermal compression via a calendering process (see from line 63 of col. 1 to line 22 of col. 2) but fails to specify the non-woven fabric as being bonded by means of a heat embossing roll. EP '161 discloses the concept of bonding an analogous non-woven fabric with a heat embossing roll and suggests that such a media is free from delamination and has good pleatability and good dimensional stability. It would have been obvious to have modified the combination of '811 and Pike et al so as to have included fabric bonded by means of a heat embossing roll as suggested by '161 in order to provide a filter media that was free from delamination and that had good pleatability and dimensional stability.

Claims 7-9 are rejected under 35 U.S. C. 103(a) as being unpatentable over over JP 4-45811 in view of Pike et al as applied to claim 1 above, and further in view of JP 1-115423.

With respect to claim 7, JP '811 and Pike et al fail to specify pleated matter having 4-50 pleats. J P '423 discloses the concept of pleating an analogous non woven strip 3 so as to have 4-50 pleats (see FIG.6) and suggests that such an arrangement increases the strength and dimensional stability of the filter media (see the abstract). It would have been obvious to have modified the combination suggested by JP '811 and Pike et al so as to have included pleated matter as suggested by JP '423 in order to increase the strength and dimensional stability of the filter.

Regarding claim 8, JP '423 discloses pleats that are non-parallel because the pleats extend along non-linear paths.

Concerning claim 9, JP '811 and Pike et al fail to specify the recited void rate, however, such a modification would have been obvious in order to optimize the filter for a particular application.

Applicant's arguments filed 7-12-04 have been fully considered but they are not persuasive.

Applicant's argument that Pike et al teach away from thermal compression bonding is noted in the case that optimum filtration efficiency was required, however, it is held that one skilled in the art would substitute thermal compression bonding for through air bonding in the case that a lower filtration efficiency could be tolerated and in the case that thermal compression bonding equipment was readily available.

Applicant's argument that the Yamaguchi declaration shows unexpected results with respect to JP '811 and Pike et al thereby rebutting a prima facie case of obviousness is not considered persuasive since the declaration fails to show any unexpected results in the case of a wound filter suggested by the prior art references.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew O Savage whose telephone number is (571) 272-1146. The examiner can normally be reached on Monday-Friday, 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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mos  
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⑮ 発明の名称 糸巻きカートリッジフィルター

⑯ 特願 平2-150285

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明細書

1. 発明の名称

糸巻きカートリッジフィルター

2. 特許請求の範囲

(1) 多孔性芯筒上に濾過層が形成されてなるカートリッジフィルターであって、前記濾過層は構成繊維の10重量%以上が0.5デニール以下に分割されている複合繊維からなるスリット不織布で形成され、前記スリット不織布は0.5~4.0T/インチの掛がけられているとともに、前記濾過層の見掛けの繊維密度が0.18~0.30であることを特徴とする糸巻きカートリッジフィルター。

(2) スリット不織布の糸幅が3~30mmである請求項1記載の糸巻きカートリッジフィルター。

(3) スリット不織布の巻き付け長さが、1サイクル当たり5~20cmの範囲である請求項1記載の糸巻きカートリッジフィルター。

3. 発明の詳細な説明

【産業上の利用分野】

本発明は、繊維を構成成分に用いた糸巻きカートリッジタイプのフィルターに関する。

【従来の技術】

繊維を構成成分に用いたカートリッジタイプのフィルターは、主に液体の濾過に有用なものである。特に製薬工業、電子工業等で使用される精製水の濾過あるいは食品工業におけるアルコール飲料の製造工程における濾過、さらには自動車工業における塗装剤の濾過等様々な分野で使用されている。

従来このようなタイプのカートリッジフィルターとしては、実開昭61-121922号公報記載の多孔性芯筒に通常の紡績糸、紡毛糸またはシノ糸を巻きつけたもの、または特公平1-53565号公報記載の不織布を巻きつけたものがある。

【発明が解決しようとする課題】

しかしながら、多孔性芯筒に通常の紡績糸や紡毛糸を巻きつけたものは、製造コストが低廉であるが、一方では濾過液が主として糸格子間の比較的大きな空隙路を通るため、高精度な濾過用とし

では不向きであるという課題がある。そのうえ初期濾過効率も良好でないという課題がある。

また、不織布を広い幅のままのり巻状態に巻いたものは、フィルターの最外層が平面的であるため、濾過精度は巻き密度を上げることによってある程度向上させることができるもの、濾過ライフが短いという課題がある。

また一般的に濾過精度と濾過ライフは相反する性質を有し、一方を向上させると他方が低下することが避けられないという課題もあった。

本発明は、前記従来例の課題を解決するため、濾過ライフをさほど低下させずに、濾過精度を向上させることができる糸巻きカートリッジフィルターを提供することを目的とするものである。

#### [課題を解決するための手段]

前記目的を達成するため、本発明の糸巻きカートリッジフィルターは、多孔性芯筒上に濾過層が形成されてなるカートリッジフィルターであって、前記濾過層は構成繊維の10重量%以上が0.5デニール以下に分割されている複合繊維からなる

スリット不織布で形成され、前記スリット不織布は0.5~4.0T/インチの織がかけられているとともに、前記濾過層の見掛けの繊維密度が0.18~0.30であることを特徴とする。

前記本発明の構成においては、スリット不織布の糸幅を3~30mmとすることが好ましい。

また、前記本発明の構成においては、スリット不織布の巻き付け長さを、1サイクル当たり5~20cmの範囲とすることが好ましい。

以下本発明の構成について詳細に説明する。

本発明において、構成繊維の10重量%以上が0.5デニール以下に分割されている複合繊維を用いる理由は、粒子直径がミクロン( $\mu\text{m}$ )オーダーの微細な異物を精度良く濾過するためである。

次に、不織布からなるスリット不織布であって、0.5~4.0T/インチの織をかける理由は、濾過層の密度を適切に保つと同時に表面積を大きくし、濾過ライフを比較的長く保つためである。

次に、多孔性芯筒上に前記スリット不織布を巻きつけて濾過層を形成するのは、カートリッジタ

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イブにするためである。

次に、濾過層の繊維密度を0.18~0.30(g/cm<sup>3</sup>)の範囲にすることは、濾過精度と濾過ライフを同時に満足させるためである。すなわち、密度が0.18未満では濾過精度が低下し、また0.30を越えると濾過ライフが低下する傾向となる。

不織布を構成する繊維に用いられる熱可塑性重合体としては、濾過に要求される特性すなわち一般に、耐熱、耐薬品性に優れていることが要求され、例えばポリエチレン、ポリプロピレン、ポリ4-メチルベンテン-1、エチレン-ビニルアルコール共重合体、エチレン-酢酸ビニル共重合体、ポリエチレンテレフタレートやポリブチレンテレフタレートなどで代表されるポリエステル、ナイロン-6やナイロン-6、6で代表されるポリアミド、ポリ塩化ビニル、ポリ塩化ビニリデン等の例を載げることができるが、これらの重合体は、濾過される対象物や濾過の目的あるいはフィルターの用途などに応じて適宜選択すればよく必ず

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しも上述した重合体のみに限定されるものではない。

このうち特に非吸水性、価格などの点からポリエチレン、ポリプロピレンが好ましく用いられる。

また、本発明においては前記構成成分として、複合繊維を用いる。複合繊維としてはたとえば前記の各種の2成分系以上の複合繊維を用いることができる。これらの複合繊維は、たとえば溶融防止時に2成分以上のポリマーを同一の口金内で複合(コンジュゲート)することにより得ることができる。

その少数の代表的2成分系の複合繊維断面の一例を第4図~第5図に示す。これらの複合繊維の使用に当っては、すでに公知の各種手法に従って用いればよく、例えば分割型の複合繊維の場合には、高圧水などの物理的応力により複合している各成分の境界面から剥離させてより細い繊維にさせることができる。すなわち、分割型複合繊維は細デニールの繊維が容易に得られる。かかる極細化処理は通常不織布製造と同時かあるいは不織布

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にした後に行なわれることが一般的であるが必ずしもこの順序に限定されるものではない。

複合繊維のうち特に好ましいのは第4図の如き分割型の複合繊維であり、各成分の境界面から物理的応力により分割分離するタイプが好ましく使用される。かかるタイプの複合繊維を用いる場合には複合繊維を構成する各成分は例えば前述した重合体のうち分割処理の時に分割しうるような組合せであれば特に限定されるものではない。また第4図～第5図においては8分割型の複合繊維を示したが、分割数は任意の数とすることができます。

また、1成分として不織布の骨格を構成する繊維となるポリプロピレン、エチレンビニルアルコール共重合体、ポリ4-メチルベンテン-1等耐熱、耐薬品性にすぐれた成分を用い、第2成分としてポリエチレンなどの熱融着性成分とする組合せにしてもよい。

また、不織布を構成する繊維としてバインダー成分の繊維（熱融着繊維成分）を混綿して使用することは好ましい方法である。スリット不織布の

強度を向上し、巻き上げ工程の効率化が期待できるほか、脱落繊維も減少するからである。バインダー繊維としては、低融点のポリエチレン、エチレン酢酸ビニル共重合体が好ましく用いられる。また好ましい混合量は、5～30重量%、とくには10～20重量%である。製造方法としては、不織布形成前に均一にバインダー繊維を混綿し、不織布形成後熟処理する事により部分的な熱融着不織布を作ることができる。

繊維の繊度については、フィルターの用途、濾過対象物、どの程度のものをどの位濾過する必要があるかなどの目的などに応じて好適なものを選定して用いればよく、特に限定するものではないが、通常、1～30デニール、好ましくは3～10デニールのものが用いられる。そして、分割型の複合繊維その他の複合繊維を用いた場合の各成分に分割された場合の繊度は、0.5デニール以下、好ましくは0.05～0.5デニール、とくに0.1～0.3デニールである。このように、複合繊維を用いて通常の単繊維よりより細いわ

ゆる極細繊維にして用いた場合には、より精密な濾過を必要とするフィルターとして好適に使用される。

不織布の原料となる繊維の製造法は特に限定されず公知技術である溶融押出紡糸、延伸を行ない、所望の長さにカットしステーブルファイバーとする代表的な手法が採用できる。

上記繊維を用いて不織布を製造する方法としては、繊維をカード機にかけてカードウェブとし、熱風加工機で加熱処理したり、熱ロール機でシート状にしたりウォーターニードル、ニードルパンチングマシン等で交絡させてシート状の不織布にするなどの方法を採用できる。このうち特にウォーターニードル法で製造された不織布が複合繊維の分割が効果的に行われる所以好ましい。

前記本発明においては、スリット不織布の糸幅を3～30mmとすることが好ましく、さらには5～20mmである。3mm未満では巻き付け工程で切れやすく、30mmを越えると重なり合う不織布間の間隙が大きくなつて濾過精度が低下す

る傾向になる。スリット不織布は、広幅の不織布を所定の幅に長さ方向にカットすることにより得ることができる。

次に前記したスリット不織布に、通常の撚糸機を用いて撚をかける。

次に前記撚をかけたスリット不織布を多孔性芯筒に巻き付ける。多孔性芯筒に巻き付ける際は、スリット糸条の巻き付け長さを、1サイクル当たり5～20cmの範囲とすることが好ましい。1サイクル（1周）5cm未満では巻き付き密度が高すぎて濾過ライフを上げることが困難となり、20cmを越えると濾過精度が低下する傾向となる。

本発明のカートリッジフィルターを製造するに際しては、芯筒上に巻きつける前の不織布からなるスリット糸としては、目付20～150g/m<sup>2</sup>のものを用いることが好ましく、特に好ましくは40～100g/m<sup>2</sup>である。目付が20g/m<sup>2</sup>より小さくなると不織布のムラができやすく、目付が150g/m<sup>2</sup>より大きくなると厚くなり過ぎて

密に巻きにくくなる。

ここで得た不織布からなるスリット糸は、ワインダーによって多孔性芯筒上へ巻きつけることにより、本発明の目的とする不織布スリット糸巻きカートリッジフィルターを得ることができる。かかる不織布からなるスリッター糸の多孔性芯筒状への巻き方は当然多孔性芯筒の表面が完全にカバーされるような巻きつけ方であれば特に限定されない。たとえば継状に巻きつけるのが好ましい。

かかる巻回によって空隙路が調整されるが、上記した巻回方式やワインド数により、適宜の空隙路に調整して用いればよい。

次に、多孔性芯筒はポリプロピレン製などのプラスチック、金属、セラミックスなど任意のものを使用できるが、コストの点からポリプロピレン製などのプラスチック製成形品が好ましい。大きさや形状は濾過装置のサイズや形式に合わせて作ることができる。孔の大きさは一例として3~5mmの角度の矩形とすることができます。

前記多孔性芯筒の表面に巻く不織布層の厚さは

一例として15~50mm程度が好ましい。

なお本発明においては、構成繊維の10重量%以上が0.5デニール以下に分割されている複合繊維からなるスリット不織布に撚をかけたものを、多孔性芯筒上に巻きつけて滤過層を形成しているものであるが、その他の成分を付加することはもちろん差し支えない。

#### [作用]

前記した本発明の糸巻きカートリッジフィルターの構成によれば、滤過層は構成繊維の10重量%以上が0.5デニール以下に分割されている複合繊維からなるスリット不織布で形成され、前記スリット不織布は0.5~4.0T/インチの撚がかけられているとともに、前記滤過層の見掛けの纖維密度を0.18~0.30としたので、内部空隙がバランスよく配置された構造のものとなる。その結果、微細で多数の均一な空隙路の為、液体中の粒子径の細かな粒子を精度良く捕捉でき、滤過ライフをさほど低下させずに、滤過精度を向上させることができる。

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また、スリット不織布の糸幅を3~30mmとしたという本発明の前記好ましい構成によれば、巻き付け密度を最適なものとすることができます。

また、スリット不織布の巻き付け長さが、1サイクル当たり5~20cmの範囲であるという本発明の前記好ましい構成によれば、前記同様巻き付け密度を最適なものとすることができます。

#### [実施例]

以下本発明の実施例を図面に基づき説明を行う。

第1図~第3図は本発明の一実施例の糸巻きカートリッジフィルターを示すものである。すなわち第1図は本発明の一実施例のカートリッジフィルターの外観斜視図、第2図は第1図のAの部分の拡大図、第3図は第1図の部分切り欠き図である。

第1図~第3図において、1はカートリッジフィルター、2は不織布スリット糸層(滤過層)、3はスリット糸、4は多孔性芯筒である。スリット糸3は多孔性芯筒4の上を継状に巻かれているので、第2図に示すように表面から見た場合、ス

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リット糸3が立体的に配列して凸凹が形成される。

次に第4図~第5図は本発明の一実施例で用いる分割型の複合繊維の断面模式図である。すなわち複合繊維5は少なくとも2成分の繊維成分6、7から構成され、物理的または化学的手段により分割されるものである。なお繊維成分6、7は同一ポリマーとしても良く、この場合には各分割成分間に別のポリマーを介在させて分割し易くすることもできる。

以上のように構成された糸巻きカートリッジフィルターについて、以下その作用、及び製造方法などを実験例により説明する。

#### 実施例1

第4図に示した繊維断面(ただし16分割)を有し、図中6の成分としてポリプロピレン、図中7の成分としてポリ4-メチルベンゼン-1を配した分割型複合繊維を溶融紡糸し、延伸し、切断することにより得た。得られた複合繊維は、繊維太さ3デニール、平均繊維長45mmであった。この複合ステープル繊維を100重量%用いて、

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カード機に通して開織し、カードウェーブとし、ウォーターニードル（水圧 4.5 kg/cm<sup>2</sup>、速度 1.2 m/min）で処理し、目付 5.8, 7 kg/cm<sup>2</sup> のシート状不織布とした。このとき、分割された 0.18 デニールの繊維の割合は 6.5 重量% であった。

この不織布をスリッターを用いて長手方向に 1 mm 帯でスリットし、スリット糸を得た。このスリット糸を加捻機により 2 T/inch の捻をかけ、紐状のスリット捻糸条 3 を得た。ここで T はインチ当たりの捻の回数を示す。

このスリット捻糸条 3 をワインダーによってポリプロピレン製多孔性芯筒 4 上に巻き付けて（1 サイクル当たり 1.0 cm、すなわち多孔性芯筒 4 の一端から他の端までのワインド数で示すと 2.5 回）内径 3.0 mm、外径 6.0 mm、長さ 25.0 mm、濾過層の密度 0.235 g/cm<sup>3</sup> のカートリッジフィルター 1 を得た。

得られたカートリッジフィルターの濾過性能について評価した結果を第 1 表に示す。

尚、この時濾過性能は次のようにして評価した。

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この比較例は、実開昭 61-121922 号公報記載のフィルターに対応するものである。

得られたカートリッジフィルターの濾過性能を第 1 表に示す。

#### 比較例 2

実施例 1 で用いた広幅の不織布を用い、これを 25.0 mm の幅にカットして多孔性芯筒上に巻き付けてカートリッジフィルターとした。この比較例は、特公平 1-53565 号公報記載のフィルターに対応するものである。

得られたカートリッジフィルターの濾過性能を第 1 表に示す。

第 1 表

	実施例 1	比較例 1	比較例 2
不織布目付 (g/d)	5.8, 7	—	6.0, 1
糸番手 (S)	—	1.2	—
濾過層密度 (g/d)	0.260	0.243	0.248
濾過率 (%)	1.45	1.80	1.00
初期濾過効率 (%)	85.3	64.9	72.4
濾過精度 (μm)	5	30	15

- 17 -

① 濾過ライフ：濃度 2.00 ppm に調整された試験用ダスト（関東ローム、平均粒径 8 μm）の懸濁液を均一に攪拌しながら、各カートリッジフィルターの外側から中空部に向かって 1.0 l/m<sup>2</sup>/min を維持するための通水圧力が 2.0 kg/cm<sup>2</sup> となった時の総通水量 (l) で評価する。

② 濾過精度：上記のようにして得られた清浄水を採取し、超遠心式自動粒度分布測定装置（堀場製作所製）で微細粒子の径を測定し、その最大粒子径 (μm) で評価する。

③ 初期濾過効率：上記懸濁液を 1 l 採取し乾燥後のダスト重量を A とし、濾過開始 1 分経過後の清浄水を 1 l 採取し、乾燥後のダスト重量を B として次式により算出する。

$$\text{初期濾過効率} (\%) = [(A-B)/A] \times 100$$

#### 比較例 1

ポリプロピレン繊維（繊維太さ 3 デニール、繊維長 4.5 mm）を使用し、リング紡績により 1.2 番手 (S) の糸を得、実施例 1 と同様に多孔性芯筒に巻き付けてカートリッジフィルターとした。

- 16 -

以上の実施例、比較例から明らかな通り、本実施例の糸巻きカートリッジフィルターは、微小な異物まで濾過できるという濾過精度に優れ、初期濾過効率にも優れ、また濾過ライフも比較例 2 に比べると優れるという顕著な効果を奏する。そして、不織布ベースであるので、内部空隙が多く微細で均一のため濾過精度がすぐれ、不織布からなるスリット糸を巻くことにより多數の均一な空隙路を形成するため濾過ライフが改良された糸巻きカートリッジフィルターとすることができる。

以上説明した本発明の糸巻きカートリッジフィルターは、主に液体の濾過に有用なものであり、たとえば製薬工業、電子工業等で使用される精製水の濾過あるいは食品工業におけるアルコール飲料の製造工程における濾過、さらには自動車工業における塗装剤の濾過等様々な分野で使用または応用することができる。

#### [発明の効果]

以上説明した通り、本発明の糸巻きカートリッジフィルターによれば、濾過層は構成繊維の 1.0

- 18 -

重量%以上が0.5デニール以下に分割されている複合繊維からなるスリット不織布で形成され、前記スリット不織布は0.5~4.0T/インチの撚がかけられるとともに、前記濾過層の見掛けの繊維密度を0.18~0.30としたので、内部空隙がバランスよく配置された構造のものとなる。その結果、微細で多數の均一な空隙路の為、液体中の粒子径の細かな粒子を精度良く捕捉でき、濾通ライフをさほど低下させずに、濾過精度向上させることができるという優れた効果を達成できる。

また、スリット不織布の糸幅を3~30mmとしたという本発明の前記好ましい構成によれば、巻き付け密度を最適なものとすることができます。

また、スリット不織布の巻き付け長さが、1サイクル当たり5~20cmの範囲であるという本発明の前記好ましい構成によれば、前記同様巻き付け密度を最適なものとすることができます。

#### 4. 図面の簡単な説明

第1図は、本発明の一実施例のカートリッジフ

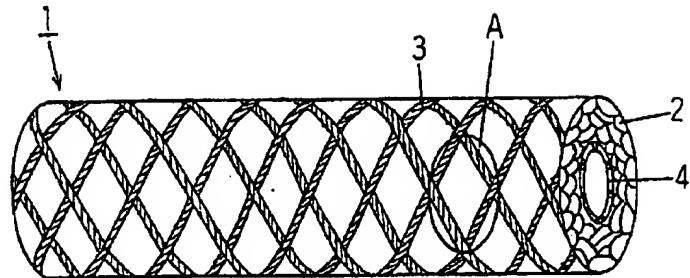
ィルターの斜視図、第2図は第1図の要部拡大図、第3図は第1図の部分断面図、第4図~第5図は~第5図は本発明の一実施例で用いる複合繊維の断面図の一例を示したものである。

1…カートリッジフィルター、2…スリット不織布層(濾過層)、3…スリット不織布、4…多孔性芯筒、5…分割型複合繊維、6, 7…繊維成分。

特許出願人 ダイワボウ・クリエイト株式会社

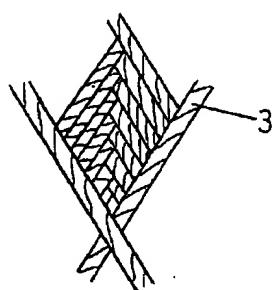
代理人 弁理士 池内 寛幸

代理人 弁理士 佐藤 公博

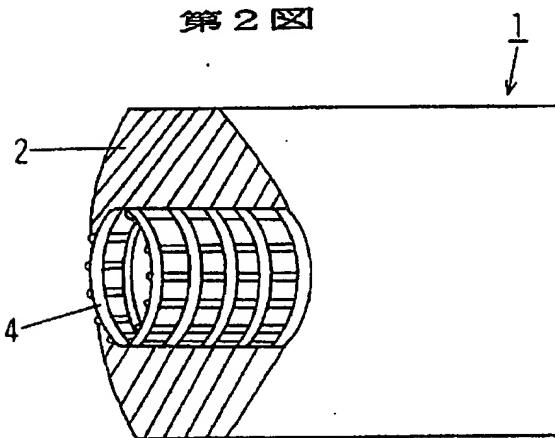


第1図

1…カートリッジフィルター  
2…スリット不織布層（通過層）  
3…スリット不織布  
4…多孔性芯筒

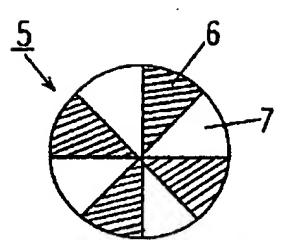


第2図

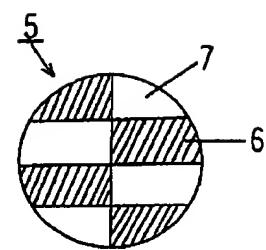


第3図

5 : 分割型複合繊維  
6、7 : 繊維成分



第4図



第5図

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of :  
Satoshi OGATA et al. : Group Art Unit: 1723  
Serial No.: 09/600,203 :  
Filed: August 9, 2000 : Examiner: M. SAVAGE  
For: FILTER CARTRIDGE

DECLARATION UNDER 37 C.F.R. § 1.132

Honorable Commissioner of Patents and Trademarks  
Washington, D.C. 20231

Sir:

I, Osamu YAMAGUCHI, a Japanese citizen of 251,  
Tateiri-cho, Moriyama-shi, Shiga-ken, Japan, declare:

That I finished the study on engineering research in a  
graduate course of Tokushima University in March of 1994;

That I have been employed by CHISSO CORPORATION of  
Kitaku, Osaka, Japan, the Assignee of the above-identified  
U.S. patent application, and I have been engaged in  
research and development on polypropylene molded products,  
mainly on polypropylene filters from April 1994 up to now;

That I am a joint inventor of the invention disclosed  
in the above-identified U.S. patent application, and hence,  
I am fully familiar therewith; and

That in order to show distinction between the claimed  
subject matter and the reference (US 6,090,731) cited in  
the examination of the above-identified U.S. patent  
application, a comparative experiment was conducted under

my supervision as follows.

### 1. Comparative Experiment

A comparative experiment was conducted so as to compare a filter cartridge of US 6,090,731 (Pike et al.) with that of the present invention. That is, the same filter cartridges as those used in the Examples 4 and 11 were examined on the filter performance almost the same experimental conditions as those of Pike's. Then, the obtained data are compared with those described in Pike's specification to know a difference in performance of the respective filter. The detailed test condition is as follows:

The same testing machine for filtering performance as used in the Examples was used for the comparative experiment. The filter cartridge for testing was weighed in advance. 1200 ml of ion exchanged water and 1 g of AC fine test particles were introduced into the tank of the testing machine followed by stirring the mixture in order to avoid sedimentation of the testing particles. After the filter cartridge was installed to the housing, the liquid in the tank was passed through the filter cartridge by pumping. The liquid through the filter cartridge was discharged to the outside of the system without being introduced into the tank again. After all of the liquid was passed through, the filter was taken out of the housing to dry in an oven at 90°C for 12 hours followed by weighed. The weight difference of the filter cartridge of after and before the test was determined to be the amount of the trapped testing particles. The initial trapping efficiency was calculated according to the following equation.

$$\text{(Initial Trapping Efficiency)} = \frac{\text{(Amount of Trapped Testing Particles)}}{\text{(Amount of Added Testing Particles)}}$$

Further, filtration life was measured according to the same method as that of the present application except

that the addition rate of the cake was 1 g/5 min. All of the test conditions were almost identical with those of Pike's.

## 2. Result and Discussion

The results are shown in the following Table.

Table

Filter	Initial Trapping Efficiency (%)	Filter Life (min.)
Ex.4 in the present application	44	160
Ex.11 in the present application	46	165
Ex.1 in Pike's	19* <sup>1</sup>	24.7* <sup>1</sup>
Ex.2 in Pike's	23* <sup>1</sup>	12.8* <sup>1</sup>
Ex.3 in Pike's	19* <sup>1</sup>	13.9* <sup>1</sup>
Ex.4 in Pike's	32* <sup>1</sup>	2.3* <sup>1</sup>
Ex.5 in Pike's	49* <sup>1</sup>	0.8* <sup>1</sup>

\*<sup>1</sup>: reproduced from Pike's specification.

The filter cartridges of Ex.4 and 11 are those produced by winding slit continuous fiber nonwoven around a perforated cylinder in a twill form. Accordingly, the filters have a larger filtration life in comparison with those of Pike's (sheet filters). For instance, the filter of Ex.11 in the present invention has almost an identical initial trapping efficiency with that of Ex.5 in Pike's, however, it has a filter life of as long as 200 times with that of Ex.5. This remarkable difference in performance is due to that of the field applied. This result shows there must be meaningless to discuss filters of different application fields with the same scale of measure.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

This 16th day of August, 2002

Osamu Yamaguchi  
Osamu YAMAGUCHI

# FILTERS and FILTRATION HANDBOOK

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'Brownian Motion' within the flow pattern of the airstream, so enhancing their chances of colliding with each other and with fibres forming the filter medium. The simplest type of mechanical filter is one providing *surface retention* - e.g. a simple screen which is generally satisfactory for simple straining and filtering duties, and can also have the advantage of being readily cleanable. Dirt retention is directly related to surface area, so surface filter media are commonly fabricated in pleated form for extended area. Pleating can also considerably increase the strength of the filter, especially with paper filters.

## Surface and Depth Filtration

**THE BASIS** of the working of a 'mechanical' filter is that the *filter medium* or *resin* works as a porous screen, removing and retaining particles too large to pass through the openings which provide the porosity, but allowing the 'carrier' fluid to pass. Particles are collected on individual fibres by numerous mechanisms. The most important of these are *direct interception*, *inertial impaction* and *diffusion*. Figure 1 shows single fibre collection mechanisms.

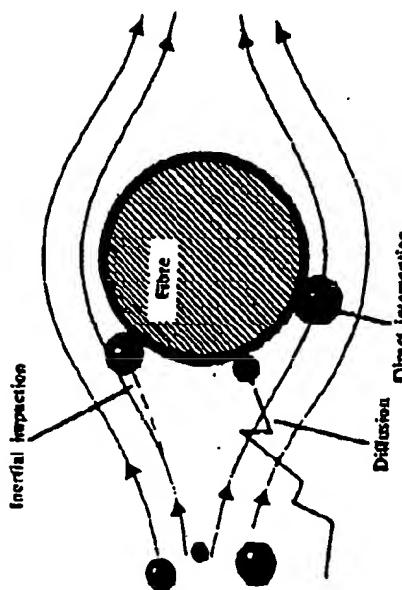
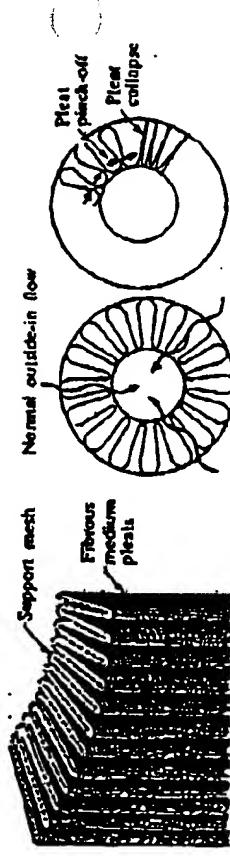


Figure 1  
Particle collection mechanisms.

Direct interception occurs when a particle or droplet collides head-on with one of the fibres.

Inertial impaction results if a particle or droplet in the airstream fails to negotiate the tortuous path presented by the random fibres in the filter bed, collides with and adheres to a fibre.

Diffusion occurs when extremely small aerosols and particles wander in,



Typical pleated paper element. A support mesh may be incorporated to prevent pinch-off or pleat collapse.

### Surface filtration

Surface filtration, also called surface straining, works largely by direct interception. Particles larger than the pore size of the medium are stopped at the upstream surface of the filter; their size prevents them from entering and/or passing through the pores or openings. Adsorptive forces, though present, are small in magnitude; surface type media are not perfectly smooth on their upstream surfaces, nor are their pores perfectly uniform in shape or direction. Thus some depth filtration can take place and can have a profound effect on the filtration characteristics and life of a surface filter.

When most surface-type filters are exposed to the flow of contaminated fluid, two effects start to take place almost immediately:

- (i) A gradual reduction in the effective pore size of the medium, as some of the pores become partially blocked by particles, so the filter starts to become 'finer', i.e. more efficient in removing fine particles. This can be caused by the retention of extremely small particles within the pores by adsorptive forces. (Figure 2a).

It can also occur due to the partial intrusion of soft, deformable particles into the pores, acting under the forces generated by fluid flow, so that these pores are effectively reduced in size. Deformable particles have the ability to conform more closely to the shape of flow-passages, thus blocking them to a greater degree than do hard particles. They can form a slime or gel that can completely clog a filter.

## BASIC PRINCIPLES

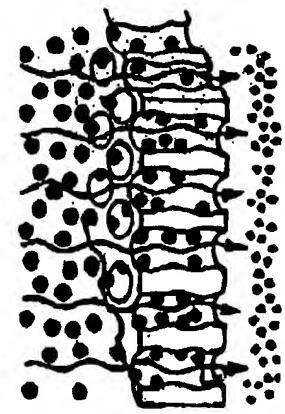


Figure 2a  
Blocking action of fine particles retained by surface filter.

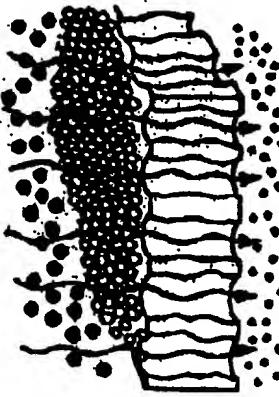


Figure 2b  
Cake build-up on surface type filter.

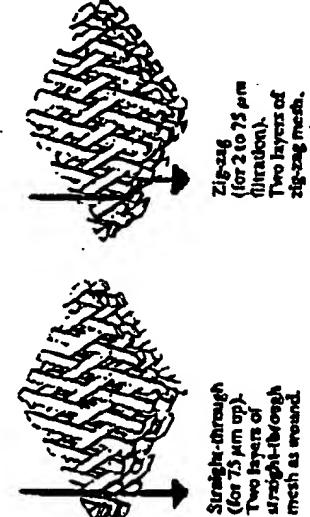
(iii) A 'cake' or bed (thick layer) of trapped particles starts to build on the surface of the medium, itself forming a filter which, by the same clogging mechanism noted previously, becomes progressively finer as operating time continues. (Figure 2b).

## Surface filtration media

Surface filtration media are of three broad types:

## 1. Screen type filters

A thin, essentially two-dimensional structure, with a series of uniform pores through it.



Examples of different filter paths provided by filter wire mesh filter elements.

Generally made of metal or plastic, screens are of the following forms:

- (a) **Woven fibre** – only woven-screen types over approximately 25 micrometres pore-size can reasonably be cleaned; other types cannot be cleaned or require expensive equipment and considerable time and labour.

## SURFACE AND DEPTH FILTRATION

A significant characteristic of a woven medium is the degree of its ability to retain its original configuration – as woven – during the subsequent manufacturing processes and service life, especially under high loads. If the fibres shift, larger than planned pores may be created, thus degrading the filtration rating on the medium. Some manufacturers sinster this type of medium with the aim of stabilising it by fusing the strands together at their interstices. The necessity for this added processing has not been completely proven.

(b) **Etched sheet** – in which the pores are produced by chemical or electrolytic processes.

(c) **Sintered powder** – thin membrane-like version of porous media as described earlier.

(d) **Cast membrane** – a film of cast polymeric plastic in which pores are produced by chemical leaching, photo-etching or atomic bombardment.

Cast membranes are normally used only when true micro-filtration is required. High, clean pressure drop and cost, plus low dirt-capacity of membrane filters generally discourage their use in fluid power applications. (See also chapter on Membranes.)

## 2. Edge-type filters

Edge-type filters involve the use of cartridge type elements with flow directed from the outside inwards, but the element is composed of a stack of discs or washers of paper, felt, plastic or metal clamped together in compression. Flow takes place from the edge inwards between the discs which may be in intimate contact in the case of non-rigid disc materials, or through the controlled clearance space between individual discs provided by spacing washers.

Such a construction has the advantage that the collected contaminant can be scraped from the upstream surface more easily and completely than it can be from a screen and this cleaning can be performed during operation of the unit. In addition, this type can be manufactured with inherent self-cleaning properties, so that cake build-up on the upstream surface can be virtually eliminated.

An edge-type filter element employing stacked paper discs is shown in Figure 3. The pack is held under compression by springs at the top of the assembly, so that the liquid undergoing filtration can only pass through the minute interstices between the discs in layers of near-molecular thickness. Virtually all solid impurities are, in fact, left on the edge of the discs since such an element can be capable of yielding an absolute cut-off of 1 µm or less.

A further property of such an edge filter employing unimpregnated paper discs is that it can trap and retain finely dispersed water in fuels, oil, or similar fluids. It is even possible to remove dissolved water by the provision of moderate heat and vacuum. The presence of water will, however, substantially increase the back-pressure of the filter due to the swelling of the discs, further restricting the clearance space available for flow. This can, if necessary, be used to operate a warming device that water is present in the fluid being filtered.

## BASIC PRINCIPLES

## SURFACE AND DEPTH FILTRATION

It will also be appreciated that whilst the performance of such a paper element is often better than that of a pleated paper element, its normal resistance, and thus back-pressure, is very much higher, or, size for size, its capacity is appreciably less. On the other hand it is one of the best types of filters for removing very fine solids from liquids – even colloidal graphite from oils – it is virtually immune to the effects of shock pressure, and element life is long with a minimum of maintenance requirements. Cleaning can usually be accomplished quickly and efficiently by a reverse flow of compressed air. The ultra-fine filtering properties may inhibit its use for particular applications due to the build-up of ultra-fine solids, restricting flow where very fine, frequent cleaning is impractical. A particular example is its unavailability for use as a bypass filter for engine lub-calling oil systems employing detergent oils.

## 3. Stacked disc filters

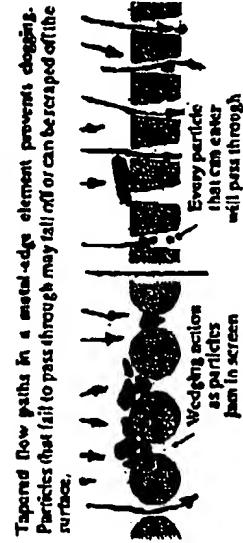
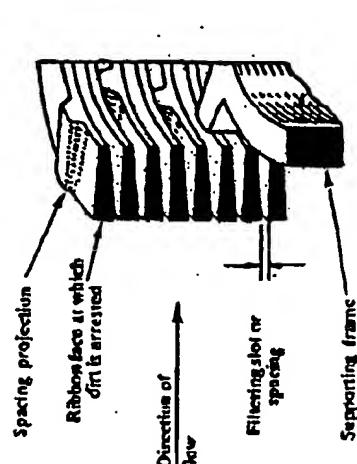
A stacked disc filter employs individual discs which are slacked over a perforated inner tube, with intermediate spacing washers. Flow is between, and subsequently through, the filter discs and into the inner tube. The discs are typically of composite construction, e.g. the face of the disc formed by a fine metal wire screen with a further back-up screen to provide effective use of the full filtration area; in the centre of the pack is a fitted separator to provide radial passageways for flow into the central perforated tube. The complete disc assembly is then held together by inner and outer binding rings.

Performance is normally that of the mesh elements or filter screen apertures, typical standard openings being from 0.25 to 0.025 mm (0.01 down to 0.001 in), equivalent to ratings of approximately 250 µm and 25 µm respectively. With this form of construction, however, performance materially improves as dirt collects in the screen, providing increasingly finer filtration.

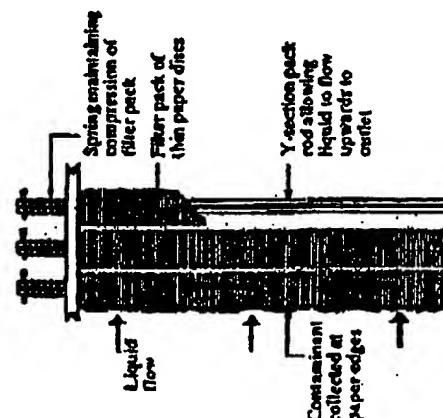
This particular form of filter is an aperture, rather than an edge-type, with the depth of filtering restricted to the depth of the face screen and back-up screen. It provides a large surface area in a compact volume and low pressure drop.

## Depth filtration

The other basic type of mechanical filter employs a medium with a significant amount of thickness providing *filtering in depth*. The mechanism of filtering then becomes much more complex. The path through the filter is much longer and random, providing greater possibility for both direct interception and dirt retention. Retention efficiency is achieved by means of a series of low efficiency particle captures. In general, larger particles will tend to be trapped in the surface layer, with the finer particles trapped by succeeding layers. If necessary, the structure of the filter can be density graded. This has a particular advantage where the particle sizes of the contaminant are widely distributed, less so if they are of more or less uniform size where a surface filter may be equally effective. Also, of course, filtering in depth will give a higher pressure drop than a surface filter.



Metal-edge type filter.

Figure 3  
Stacked disc edge-type filter.

The overall performance of a depth-type filter, however, can be better than that given by its purely mechanical action of direct interception. The inertia of particles impinging directly on to the filter medium may generate absorptive surface forces, and Brownian movement effects may be present with fine particles, again developing absorptive retention. As a result, the depth filter may trap and retain particles finer than that provided by pure mechanical filtration alone. Brownian movement applies only to particles of about 1 µm in size or less, causing such particles to diffuse through the filter medium regardless of fluid flow, where they are likely to be retained by adsorptive forces. This phenomenon is most marked where the fluid carrier is a dry gas (the dryer the gas the more powerful the electrostatic adsorptive forces) and least marked with higher viscosity liquids.

#### Depth-type media

The ideal depth-type filter medium has increasingly dense layers from the outside (upstream) to the inside (downstream) side - Figure 4. Such a graded structure provides an increasing chance of finer particles being trapped on their passage through the filter. Practical depth-type filters are made from media which may be generally categorised as:

- (i) Fibrous.
- (ii) Porous.
- (iii) Cake-like.

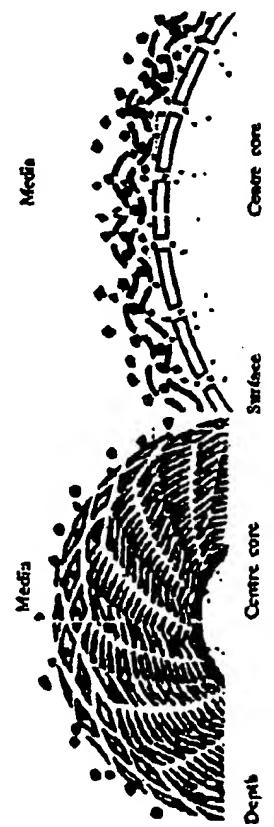


Figure 4  
Graded depth type filter compared with surface filter.

Fibrous media comprise a layer, or mat, of numerous very fine fibres, of diameters ranging from 0.5 to 30 µm, depending on the material. These fibres are randomly oriented to each other, intermixed and intertwined so that they create numerous tortuous flow-passages or pores in which the particles are trapped and held by the mechanisms described previously.

The fibrous materials most commonly used are: Polymeric materials: Cellulose; Cellotone; Micro glass-fibre; Synthetics, (eg rayon, polypropylene).

Relative efficiencies of these media types are a function of fibre diameter, the narrower the fibres, the closer they can be compacted. The result is that smaller diameter fibres have smaller flow paths. Micro glass-fibre is smaller in diameter than cellulose and has therefore, a better filtration efficiency.

Typically, the layer is 0.25 to 2 mm (0.010 to 0.080 in) thick and is impregnated with resin (phenolic, epoxy or acrylic) to bind it together. The maintenance of stable structure, including pore size, and therefore of stable filtration characteristics throughout the medium's service life, referred to as *'filter integrity'*, is a function of the fibre-binding system.

Fibrous filter media are used for the collection of sub-micrometre particles in clean air environments. Filter media made from electret fibres have an open structure and are capable of achieving a high particle collection efficiency without creating a high pressure drop.

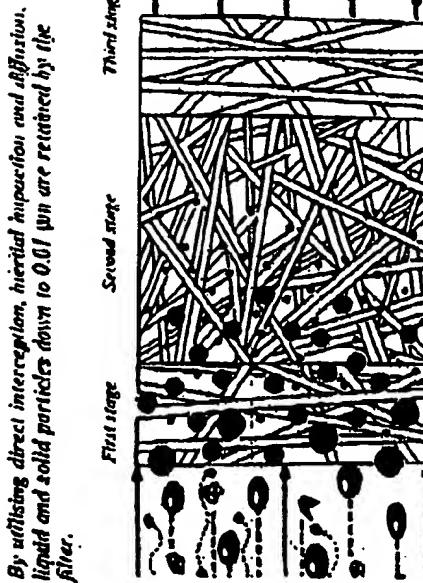
Electrets are permanently charged dielectrics made in most cases from polymeric materials that generally permit substantial sub-micrometre size particle penetration.

Contaminants such as viruses or bacteria must be removed from air supplied to operating theatres in hospitals and the need for near dust-free air is important for the manufacture of microelectronic equipment. Electret filters can provide a solution to the efficient cleaning of air and gases in these environments.

#### Binder-free media

The introduction of a three-dimensional layered binder-free *burrasilicate interfibre webbing* has assumed considerable importance in depth filtration, particularly in relation to the filtration of compressed air and gases.

The characteristic feature of this material is that the fibres are 'welded' together by temperature and pressure.



By utilising direct interception, inertial impaction and diffusion, liquid and solid particles down to 0.01 µm are retained by the filter.

## BASIC PRINCIPLES

## SURFACE AND DEPTH FILTRATION

Advantages claimed for this type of fibrous media are:

1. If the fibre diameter is the same throughout, the void volume increases. This automatically reduces pressure loss, increases retention and can prolong filter life.
2. The fibres are incorporated into the filter material in their natural state and their retention properties are unaffected by the insulating acrylate layer.
3. The fibre diameter starts off the same, and an insert of acrylate increases it. However, the diameter reduces exponentially when the degree of retention is measured ( $\sigma/c$ ).

4. The pure fibre is inert, chemically, biologically inactive and neutral. Glass can actually only be attacked by hydrofluoric acid and the strongest of alkalis. The resistance of fibres with binders is determined by the chemical resistance of the binder.

5. A fibre consisting solely of glass is resistant to temperatures up to 500°C. Binders soften at temperatures between 80 and 150°C and lose their resistance, and the basic characteristics of the filter material is thus also lost.

*Porous media* are similar in that they have slow pores presenting a capillary-type passage. This differs from a fibrous medium in that its parent material is solid or in the form of randomly shaped particles of roughly spherical proportions.

There are three major forms of porous media:

- (i) Particles of the parent materials are cast to shape, then baked or sintered to bond them together into a self-supporting structure. Typical materials are metals, ceramics and stone.
- (ii) A sheet of parent plastic materials is cast, then pores are formed by solvent evaporation, leaching, stretching, piercing or nuclear bombardment.
- (iii) Porous media are formed by the foaming of plastic materials, typically polyurethanes.

*Cake-type media* are more limited in application and generally employ bed-type filtration for removal of solids in significant bulk. (Figure 5). They comprise a layer or bed of separate, loose, discrete particles formed a 'cake' on a supporting screen or mesh, usually by the action of fluid flow. voids between the particles form the pores and flow passages required for filtration. Binding materials are not used to bond the particles to each other.

Typical materials used to form the cake are:

Diatomaceous earth; Sand; Clays; Wood fibres; Cotton fibres.

This loose bed construction makes them generally unsuitable for fluid processing applications, where stability, compactness and resistance to vibration are of importance. The characteristic of recirculating some of the discrete particles through the system, until the cake is formed, is a definite deterrent to use in power systems.

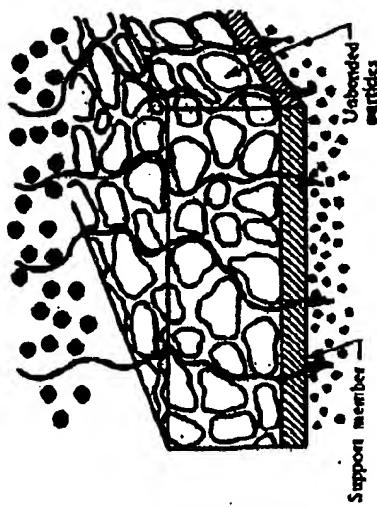


Figure 5  
Cake type filter medium.

LEXSEE 7 USPQ2D 1818

Ex parte Jacques Dussaud and Raphael De Jonckheere

Appeal No. 666-06 from Art Unit 131.

Application for Patent filed May 1, 1984, Serial No. 605,970, which is a Continuation  
of Serial No. 301,262, filed September 11, 1981, now abandoned.

Process for Manufacturing Disposable Diapers And Diaper Briefs, And Disposable  
Diapers And Diaper Briefs Obtained By Application Of This Process.

Board of Patent Appeals and Interferences

1988 Pat. App. LEXIS 11; 7 U.S.P.Q.2D (BNA) 1818

April 5, 1988, Heard  
June 9, 1988, Decided

[\*1]

Before Milestone, Winters and Skinner, Examiners-in-Chief.

**COUNSEL:**

I. William Millen et al. for Appellants.  
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Primary Examiner - Jerome Massie

**OPINIONBY: WINTERS**

**OPINION:**

Winters, Examiner-in-Chief.

Appeal from the examiner's decision refusing to allow claims 10 through 18 and 21, which are all the claims remaining in this application.

Claim 10 is representative:

10. A method of continuously attaching an elongated narrow elastic element to a moving flexible sheet material to be employed as an outer moisture impermeable envelope for receiving an absorbent pad of a disposable diaper, said elastic element fitting in a stretched condition substantially along a curvilinear-shaped-cut-out of said envelope to allow a leg therethrough when said envelope is constructed as a diaper, said method comprising the steps of:

- (a) passing an elongated narrow elastic element, along a longitudinal path of travel, in a stretched condition;
- (b) intermittently depositing liquid adhesive material at high temperature on said elastic element during said passing step (a);

- (c) passing said elastic element, with adhesive material thereon, [\*2] over a fixed guide means;
- (d) passing said elastic element with adhesive material over a carriage means, arranged down-stream of the fixed guide means in the direction of travel, and capable of being moved intermittently in a transverse direction;
- (e) feeding said flexible sheet around the peripheral surface of a rotary drum such that the sheet remains in contact with said drum for about one-half the rotation of said drum, said drum having a smooth outer surface which is maintained at a substantially constant temperature, said temperature being less than the temperature of said liquid adhesive, the difference between the temperature of the adhesive at the time of contact with said flexible sheet and the temperature of said peripheral surface of the drum being at least 20 degrees C; and
- (f) positioning said movable carriage immediately next to the periphery of said rotary drum at a location such that said carriage means and said drum are not in contact with each other and such that the adhesive coated elastic element contacts said flexible sheet supported by said drum, and said sheet together with said elastic element remain in contact with said drum for at least a portion of [\*3] the rotation of said rotary drum before leaving it, moving said carriage means intermittently in a direction transverse to the direction of rotation of said drum whereby said elastic element is laid-down on said drum in an oscillating path, and whereby said elastic element is intermittently attached in a stretched condition along a curved-shaped line only by laying said elastic element on said flexible sheet due to the temperature difference between the drum and the adhesive material;

and with the provision that steps (e) and (f) are conducted on a single drum and said temperature difference is sufficient to lead to an immediate adhesion effect capable of withstanding the transverse forces to which said elastic element is subjected owing to the movement of said carriage means.

The prior art references relied on by the examiner are:		
Penman	3,150,023	Sep. 22, 1964
Bourgeois	3,828,367	Aug. 13, 1974
Buell	4,081,301	Mar. 28, 1978
Klasek et al. (Klasek)	4,293,367	Oct. 6, 1981
Teed	4,405,397	Sep. 20, 1983

Claims 10 through 16 and 21 stand rejected under 35 USC 103 as unpatentable over Klasek in view of the combined teachings of Buell, Penman, and Teed. Claims 17 [\*4] and 18 stand rejected under the same statutory provision as unpatentable over the same combination of references, further taken in view of Bourgeois.

#### OPINION

We shall not sustain these rejections.

Initially, we consider the question whether the Penman reference is from a nonanalogous art. First, we find it clear that this reference is not within the field of appellants' endeavor. On the contrary, Penman relates to the art of carpet manufacture whereas appellants' field of endeavor is the art of manufacturing disposable diapers. Indeed, each of the patents issued to Klasek, Buell, Teed, and Bourgeois relates to the art of making diapers, as does appellants' specification disclosure. Penman, which stands apart, relates to the art of making carpets.

Second, it is our judgment that Penman is not reasonably pertinent to the particular problem with which appellants were involved, i.e., the application of an elastic strip to a web in a curvilinear pattern. In determining this latter point, we have evaluated and weighed the Courtry declaration filed under Rule 132 wherein declarant sets forth reasons why the artisan "would not look to the carpet manufacturing process and [\*5] equipment field to solve a problem in the application of elastic to a web in a curvilinear pattern". See Paper No. 15, page 1. We note that the examiner entered and considered the declaration (see Paper Nos. 18 and 22) but found same "not persuasive" because, according to the examiner, declarant merely offers his opinion on the art of carpet making. The examiner discounted that opinion because declarant is not established as an expert in that art. We disagree with the examiner's analysis. The examiner does not deny that declarant is skilled in the art of manufacturing diapers, although declarant does not claim to have the same level of skill in the art of making carpets. In this regard, we note that persons having ordinary skill "could not possibly be aware of every teaching in every art". See *In re Wood*, 559 F.2d 1032, 202 USPQ 171, 174 (CCPA 1979). Certainly, declarant expresses skepticism whether a person having ordinary skill in the art of manufacturing disposable diapers would consider the carpet manufacturing process and equipment field as reasonably pertinent to the particular problem with which the appellants were involved. As stated in *In re Dow Chemical* [\*6] Company, 837 F.2d 469, 5 USPQ 2nd 1529 (Fed. Cir. 1988), skepticism expressed by an expert in the art is entitled to fair evidentiary weight.

We also find that the examiner's characterization of the problem in Paper No. 22, i.e., "the laminating of continuous running sheets utilizing a hot melt adhesive", is broader than the particular problem with which appellants were involved. Precise definition of the problem is important in determining whether a reference is from a nonanalogous art. Defining the problem too narrowly may result in excluding consideration of relevant prior art. By the same token, defining the problem too broadly, as done here, may result in considering prior art as "analogous" which is inconsistent with real world considerations. See Panduit Corp. v. Dennison Mfg. Co., 774 F.2d 1082, 227 USPQ 337 (Fed. Cir. 1985), vacated, 475 U.S. 809, 229 USPQ 478 (1986), aff'd on remand, 810 F.2d 1561, 1 USPQ2d 1593 (Fed. Cir. 1987).

Having applied the two-fold test for determining whether a reference is from a nonanalogous art, see *In re Wood*, supra, we hold that on the facts of this case the Penman reference constitutes nonanalogous art. It is therefore [\*7] not available as a reference in evaluating the obviousness of appellants' claimed invention under 35 USC 103.

Turning to a consideration of the Teed patent of record, we find that Teed discloses a method for manufacturing disposable diapers wherein elastic strips are applied in a straight line. This is illustrated in Figure 8, note rectilinear elastic strips (16) therein. Klasek, on the other hand, discloses a method for manufacturing disposable diapers wherein the elastic strips are applied in a curvilinear profile, and Klasek requires that the web and elastic be secured together by a pair of juxtaposed rolls acting in concert. See particularly Klasek, Figures 4 and 9. Certainly, Klasek's method involving a pair of rolls could be modified per the disclosure of Teed which appears to illustrate the use of a single roller. In our view, however, such proposed modification amounts to a hindsight reconstruction of the prior art patents in order to arrive at appellants' invention. Without having the benefit of appellants' disclosure, the artisan would view Klasek's pair of rolls as serving an important function in facilitating the application of elastic strips in a curvilinear [\*8] profile. As discussed supra, the elastic strips in Teed are applied in a straight line and we disagree that the artisan would have found it obvious to substitute a single roller from Teed for a pair of rollers in Klasek, whose objective is to apply elastic strips in a curvilinear profile.

The mere fact that the prior art could be modified in the manner proposed by the examiner would not have made the modification obvious unless the prior art suggested the desirability of the modification. See *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984) and cases cited therein. We have carefully reviewed the Klasek and Teed references in their entireties, and we find no express or implied suggestion in the collective teachings of these references which would have motivated the artisan to combine them in the manner proposed.

In conclusion, we hold that the Penman reference constitutes nonanalogous art and is therefore not available as a reference in evaluating the obviousness of appellants' claimed invention under 35 USC 103. With respect to the Teed patent of record, we conclude that Teed is not properly combinable with the "primary" reference to Klasek in the manner proposed [\*9] by the examiner. Penman and Teed are essential to the examiner's case of obviousness. The examiner does not contend, nor do we find, that the combination of Klasek and Buell or the combined teachings of Klasek, Buell and Bourgeois are sufficient to establish the obviousness of appellants' claimed invention. Accordingly, the examiner's decision refusing to allow claims 10 through 18 and 21 is reversed.

REVERSED.

LEXSEE 370 F2D 927

**IN RE RUDOLF WIECHERT**

**No. 7636**

**United States Court of Customs and Patent Appeals**

**54 C.C.P.A. 957; 370 F.2d 927; 1967 CCPA LEXIS 412; 152 U.S.P.Q. (BNA) 247**

**Oral argument October 3, 1966**

**January 19, 1967**

**PRIOR HISTORY:** [\*\*\*1]

APPEAL from Patent Office, Serial No. 98,026

24, 1961, for "l[\*] -Methyl Steroids." Claims 11-18 and 25 have been allowed.

**Introduction**

The invention relates to certain l[\*] -methyl dihydrotestosterones and their 17-acylates which possess strong androgenic and anabolic activities. Claim 1, [\*\*929] generic to all claims in the application, reads:

[\*959] 1. A compound of the formula:

[Graphic omitted. See illustration in original.]

wherein X is selected from the group consisting of hydrogen and halogen; wherein

[Graphic omitted. See illustration in original.]

is

[Graphic omitted. See illustration in original.]

and wherein R is selected from the group [\*\*\*2] consisting of

[Graphic omitted. See illustration in original.]  
[\*\*930]

wherein acyl is derived from a lower aliphatic carboxylic acid.

Appealed claims 2 and 3 are directed to that embodiment of the invention wherein the substituent X in the structural formula of claim 1 is a hydrogen atom.

**LexisNexis(R) Headnotes**

**COUNSEL:**

*Michael S. Striker* for appellant.

*Joseph Schimmel (Jack E. Armore, of counsel)* for the Commissioner of Patents.

**OPINIONBY:**

RICH

**OPINION:** [\*\*928]

[\*958] Before WORLEY, Chief Judge, and RICH, MARTIN, SMITH, and ALMOND, Associate Judges

RICH, Judge, delivered the opinion of the court:

This appeal is from the decision of the Patent Office Board of Appeals affirming the examiner's rejection of claims 1-3 of application serial No. 98,026, filed March

54 C.C.P.A. 957, \*; 370 F.2d 927, \*\*;  
1967 CCPA LEXIS 412, \*\*\*; 152 U.S.P.Q. (BNA) 247

All of the allowed claims are directed to compounds, or processes for making them, wherein X is a halogen.

The appealed claims were rejected by the examiner under 35 USC 103 as obvious "from the standpoint of structural chemistry" in view of a sole reference:

Ringold et al. [I], 2,908,693, Oct. 13, 1959.

In addition, the examiner cited the following patent "to show the state of the art":

Ringold et al. [II], 3,032,552, May 1, 1962 (Filed Apr. 5, 1955).

The examiner contended that Ringold [I] discloses dihydrotestosterones which are the 1-desalkyl derivatives of the compounds claimed by the appellant. Ringold [I] is concerned with a process for the production of 2-methyl-dihydrotestosterones and it shows compounds of the following structural formula as starting materials:

[Graphic omitted. See illustration in original.]

[\*960] where R represents hydrogen [\*\*\*3] or a lower alkyl group of less than 7 carbon atoms. The examiner stated that "the claimed compounds are so closely related to the prior art compounds \* \* \* as to be obvious \* \* \*."

Appellant submitted an affidavit by Langecker n1 which shows, in the words of the examiner, that "1-methyl dihydro-testosterone is 7.5 times as strong anabolically and 7 times as strong androgenically as the prior art compound." Appellant contended in essence that the superior properties of his novel compounds impart patentability thereto under In re Papesch, 50 CCPA 1084, 315 F.2d 381, 137 USPQ 43.

n1 Dr. Hedwig Langecker was, from 1934 to 1945, an associate professor of Experimental Pharmacology and Pharmacognosy at the German University of Prague and, at the time of the affidavit, a scientific advisor for the firm of Schering A.G., Berlin, Germany, assignee of the application at bar.

The examiner considered the differences in properties shown by appellant's affidavit to be merely "differences of degree rather than of kind" and gave "no affirmative weight" to the affidavit. In addition, the examiner cited Ringold [II] as showing that the prior art was aware that the 1-methyl substituent [\*\*\*4] would enhance the properties of the "parent compound." Ringold [II] relates to certain 1-methyl-19-nor-[\*] (4)-3-ketones, which include 1-methyl-19-nor-[\*] (4)-androstene 17[\*]-ol-3-one (1-methyl-nor-testosterone), and the method of their preparation. The particular

portion [\*\*931] of Ringold [II], n2 designated by the examiner for the above purpose, states:

n2 Ringold [II] is not included in the printed record but copies of that patent were later furnished to us by the Patent Office.

The novel compounds of the present invention are novel androgenic hormones having at least the anabolic activity characterizing testosterone and in some instances having enhanced or lesser androgenic effects. (Emphasis ours.)

The board, in affirming the examiner's rejection of claims 1-3 considered the claimed compounds are so closely related to the prior art compounds as to be obvious to those skilled in the art and found that the affidavit did not overcome "the presumption of obviousness." However, the board then added:

We further note that the compound set forth in column 1, lines 60 to 70 of the Ringold et al. reference [Ringold I] is a position isomer of both the [\*\*\*5] instant 17-ol and 17-ester compounds and there is nothing persuasive of record to indicate that the instant compounds are patentable thereover. [Emphasis ours.]

The "position isomer" of Ringold [I], not specifically relied on by the examiner and noted for the first time by the board, has the following structural formula:

[Graphic omitted. See illustration in original.]

[\*961] where R represents hydrogen or a lower alkyl group of less than 7 carbon atoms and R' represents hydrogen on an acyl group of a hydrocarbon carboxylic acid of 2 to 12 carbon atoms. A comparison of the above formula with that of claim 1 will show that the two differ mainly in the location of the CH(3) group on the left ring of the 4-ring nucleus. Thus, the board termed the two "position isomers."

After the board's decision was rendered, the history of this application became considerably more complicated. The details of that portion of the prosecution are fully set forth in Part II of this opinion, infra. Suffice it to say for the present that counsel for appellant described it, during oral argument, as a "nightmarish" situation.

We have divided this opinion into two sections, in part [\*\*\*6] for the reason that the argument on the merits and a reargument on the question of the composition of the Board of Appeals panel hearing the case were heard by different benches. We come now to "Part I," dealing with the "merits," that is to say the rejection of the claims.

54 C.C.P.A. 957, \*; 370 F.2d 927, \*\*;  
1967 CCPA LEXIS 412, \*\*\*; 152 U.S.P.Q. (BNA) 247

### I. Merits of the Rejections Based on Ringold [I]

As indicated above, the examiner rejected the appealed claims on the basis of the so-called 1-desalkyl derivatives of [\*\*932] the claimed 1-methyl dihydrotestosterones shown in Ringold [I]. While the board affirmed the examiner's reasoning, it made the additional observation that Ringold [I] discloses a position isomer of the claimed compounds and such isomer is also a bar to the patentability of appellant's claims. We will take up these issues in that order.

[1] Appellant attempted to overcome the examiner's rejection by the submission of the Langecker affidavit. The examiner's Answer before the board admitted that the affidavit shows the claimed compounds to be about 7 to 7.5 times as effective as the prior art compound. However, the examiner, and the board, found the affidavit insufficient to overcome the reference since affiant has shown [\*\*\*7] no new properties but merely an alleged improvement in the same properties. The improvement in the same properties possessed by the prior art compounds is labeled by the examiner and the board as "differences of degree rather than of kind."

[\*962] Appellant contends that obviousness of a novel compound is to be decided not only from a comparison of its structural formula with that of the prior art compound, but from all properties of the compounds. In re Papesch, *supra*. Appellant then submits that the 7-fold androgenic activity and 7.5-fold anabolic activity shown for his compounds constitute "clear proof of unobvious and patentable greater effectiveness."

We think appellant's contentions have merit and the board's decision with respect to the rejection based on the 1-desalkyl compounds of Ringold [I] is therefore reversed.

As we indicated in In re Lohr, 50 CCPA 1274, 317 F.2d 388, 137 USPQ 548, it is possible to obtain a patent where the showing proves substantially greater effectiveness:

When a new compound so closely related to a prior art compound as to be structurally obvious is sought to be patented based on the alleged greater effectiveness of the new compound [\*\*\*8] for the same purpose as the old compound, clear and convincing evidence of substantially greater effectiveness is needed. [Emphasis added.]

Again, in In re Grier, 52 CCPA 1081, 342 F.2d 120, 144 USPQ 654, we held that a large difference in degree (3-fold increase) was persuasive evidence, in the absence of countervailing evidence, of unobviousness. See In re Carabateas, 52 CCPA 1386, 345 F.2d 1013, 145 USPQ 549, where a showing of six and nine times effectiveness was held insufficient to establish patentability because

the record there contained "other evidence" (our emphasis) which compelled a holding of obviousness.

In the case at bar, we are impressed by the 7-fold improvements in activity and, in the absence of valid countervailing evidence, we find the claimed compounds to be unobvious. There is nothing in any reference of record which would suggest any improvement, let alone a 7-fold improvement in activity.

The examiner apparently attempted to rebut the thrust of the affidavit by citing Ringold [II] as showing the art was aware that the 1-methyl substituent would enhance the properties of the parent compound. The statement in Ringold [II] relied upon by the [\*\*\*9] examiner, quoted above, clearly does not support that proposition. In the first place, Ringold [II] only states that his compounds have "at least the anabolic activity" of the prior art testosterone and "in some instances \* \* \* [have] enhanced or lesser androgenic effects." These phrases could hardly be characterized as teaching that these activities would be increased at all, let alone increased several fold. Furthermore, the cited statement in Ringold [II] refers to 1-methyl-19-nor-testosterone and there is no showing that such 19-nor compound and the claimed compounds behave in a similar fashion when [\*963] substituents are added to or deleted therefrom. Therefore, Ringold [II] does not support the allegation of the examiner.

[\*\*933] [2] The solicitor's brief alleges certain inconsistencies between the two tables in the affidavit and between the affidavit and the application as originally filed. However, these alleged inconsistencies were not pointed out or adverted to by either the examiner or the board. Hence we regard this attack, on the credibility as opposed to the sufficiency of the affidavit, to be a new issue rather than a new argument and therefore [\*\*\*10] not properly before us. In re Nygard, 52 CCPA 1032, 341 F.2d 924, 144 USPQ 586.

[3] We turn now to the issue raised by the "position isomer" first noted in the board's opinion. The board's language, quoted above, in noting the isomer, appears to us to be a rejection of the appealed claims on the ground the claimed compounds are obvious, under 35 USC 103, in view of the disclosed isomer. For reasons to be stated below, we find this to be a ground of rejection which was specifically pointed out for the first time by the board and, under the facts of this case, we believe that appellant should be afforded an opportunity to respond to that rejection. In view of the board's failure to do so, we remand the case to the board for further proceedings. Cf. In re Yale, 52 CCPA 1668, 347 F.2d 995, 146 USPQ 400.

[4] Position isomerism involves close structural similarity which is to be taken into consideration with all

other relevant facts in applying the test of obviousness under section 103. In re Mehta, 52 CCPA 1615, 347 F.2d 859, 146 USPQ 284. However, all other relevant facts must also be considered, as the board appears to have been aware when it stated that "there is nothing [\*\*\*11] persuasive of record to indicate that the instant compounds are patentable" over the isomer. Of course, there is nothing of record to so indicate since the isomer was first pointed out and relied upon by the board.

As we had occasion to state, in a different factual situation in In re Hughes, 52 CCPA 1355, 345 F.2d 184, 145 USPQ 467:

It seems basic to the concept of procedural due process that an applicant at least be informed of the broad statutory basis for rejecting his claims, so that he may determine what the issues are on which he can or should produce evidence.

In the present case, the rejection first advanced by the board left appellant without an opportunity to make a showing of unobviousness. Appellant requests that we provide such an opportunity by remanding the case to the board.

[5] An applicant's attention and response are naturally focused on that portion of the reference which is specifically pointed out by the examiner. More important, where, as here, the appellant depends on a showing of unexpected properties to support patentability, the comparison which results in a conclusion of unexpected properties cannot [\*964] practically be made for all [\*\*\*12] of the compounds which might be mentioned in a particular reference. n3 Under such circumstances, we conclude that when a rejection is factually based on an entirely different portion of an existing reference the appellant should be afforded an opportunity to make a showing of unobviousness vis-a-vis such portion of the reference.

n3 This point seems to be appreciated by the Patent Office itself as its Rule 106(b) provides, *inter alia*, that:

When a reference is complex or shows or describes inventions other than that claimed by the applicant, the particular part relied on must be designated as nearly as practicable.

## II. The Question of the Composition of the Patent Office Board of Appeals

This case was initially argued here on 10 March 1966, Judge Kirkpatrick sitting by designation in place of the Chief Judge pursuant to 28 USC 294(d). At that time the case was argued on the merits. Appellant also called to our attention a request for reconsideration, n4

contained in the record before us, [\*\*934] in which, following the wholly adverse and unanimous decision of the board of 30 October 1964, appellant pointed out that the board rendering the decision consisted of [\*\*\*13] Federico, Examiner-in-Chief, and Stone and Rosdol, acting Examiners-in-Chief. Appellant pointed out that Stone was a Supervisory Examiner. Rosdol, presumably, was a Primary Examiner. While expressly disavowing any objection to the abilities of the acting Examiners-in-Chief, it was urged by appellant that the board was improperly constituted under 35 USC 7 n5 in that not more than one acting Examiner-in-Chief could be a member of a three-man board hearing an appeal - that there must be two regularly appointed (as distinguished from temporarily designated) Examiners-in-Chief.

n4 Appellant's original brief here says "appellant filed a request for reconsideration \* \* \*." The printed record contains this paper with the printed heading, prepared in the Patent Office, "Request for Reconsideration, November 20, 1964." Our Rule 25(3)(b) calls for simplifying such headings to a short title and date and inquiry by us of the Patent Office has brought out the fact that the actual title on the paper as filed was, "Petition to the Commissioner of Patents for a New Hearing before the Board of Appeals."

As required by Patent Office Rule 1, the paper was addressed: "Hon. Commissioner of Patents, Washington, D.C." It bears a Mail Room stamp of Nov. 20, 1964, and a Board of Appeals stamp of Nov. 23, 1964.

[6] On its face it appears to be directed to the Board of Appeals since it requests that the decision of the board be "withdrawn" and it would appear that no one other than the board itself could "withdraw" its opinion. See also 35 USC 7, last sentence of first paragraph, reading: "The Board of Appeals has sole power to grant rehearings."

n5 Paragraph 2 of 35 USC 7, so far as applicable here, reads:

Whenever the Commissioner considers it necessary to maintain the work of the Board of Appeals current, he may designate any patent examiner of the primary examiner grade or Higher, having the requisite ability, to serve as examiner-in-chief for periods not exceeding six months each. An examiner so designated shall be qualified to act as a member of the Board of Appeals. Not more than one such primary examiner shall be a member of the Board of

54 C.C.P.A. 957, \*; 370 F.2d 927, \*\*;  
1967 CCPA LEXIS 412, \*\*\*; 152 U.S.P.Q. (BNA) 247

Appeals hearing an appeal. [Emphasis ours.]  
[\*\*\*14]

The Request for Reconsideration asserted that the adverse decision of the board was a "nullity" because the board was improperly constituted. [\*965] Appellant requested that the case "be set for rehearing before a properly constituted Board of Appeals."

The Request for Reconsideration points to no error in and asks for no revision of the board decision.

The record shows no further action by any Board of Appeals in this case prior to the taking of this appeal. What transpired, in summary, is the following:

1. The 3 Dec. 1964 response by the Patent Office to the above Request for Reconsideration is entitled "Commissioner's Decision" and was by the First Assistant Commissioner. It opens with the statement, "This is a petition requesting that the decision of the Board of Appeals rendered October 30, 1964 in this case affirming the decision of the primary examiner be vacated and that the case be set for hearing before another board." The decision was:

It is clear from the quoted language [from 35 USC 7, see note 2, *supra*] that the expression "such primary examiner" refers to the "patent examiner of primary examiner grade" previously referred to and not to the examiner [\*\*\*15] of higher grade. Since a supervisory examiner is of a higher grade than a primary examiner, the board which decided this case was properly constituted and the petition is accordingly denied.

2. On 14 Dec. 1964 appellant filed a "Petition to Commissioner" under Rule 181 asking the Commissioner, acting under his rulesuspending power (Rule 183), (a) to permit the filing of the petition for reconsideration, (b) to waive the [\*935] third sentence of Rule 304 to permit filing this appeal 30 days after the decision on said petition, (c) to extend the time for filing a new petition and the filing of an affidavit appellant wished to file answering an alleged new ground of rejection by the board, and (d) to extend the time for filing appeal from the board's decision.

3. A Commissioner's Decision of 22 Dec. 1964 denied all requests for want of a showing of "an extraordinary situation" as required by Rule 183, in the absence of a showing why the board was not requested to reconsider its decision within the time provided by Rule 304.

4. On 24 Dec. 1964 another "Petition to Commissioner" argued that an extraordinary situation had been shown and that appellant could not have asked [\*\*\*16] the same board to review its decision without admitting the board was properly constituted.

5. The Commissioner's Decision of 24 Dec. 1964 denied the petition filed the same day.

6. This appeal was taken 29 Dec. 1964, by Notice of Appeal, the eight reasons of appeal annexed thereto alleging error only with respect to the rejection of claims and making no reference, direct or otherwise, to the previously asserted unlawful constitution of the board.

All of the papers above referred to are included in the record before us. Appellant's brief contains a recitation of what transpired in the [\*966] Patent Office to lay the basis for only one request of us, namely, that if we do not find the appealed claims allowable, we remand the case to the board "so as to afford appellant an opportunity to submit in an affidavit the tests described hereinabove and to have this affidavit evaluated by the Patent Office prior to adjudication of this case by the Hon. Court of Customs and Patent Appeals." This is the affidavit referred to in "2," above. We are not asked to do anything about, or to take any other action based on, the alleged unlawful constitution of the board.

Having been [\*\*\*17] made aware of the foregoing factual situation, this court set this case down for reargument by an order dated 10 June 1966, In re Wiechert, 53 CCPA 1351, 361 F.2d 482, 149 USPQ 894, the reargument to be limited to the following three questions:

1. Is this court authorized to consider, in the present proceeding, appellant's challenge to the composition of the Board of Appeals whose decision is here appealed?

2. What authority, if any, permits the Commissioner of Patents to designate as members of a Board of Appeals under paragraph 1 of 35 USC 7, more than one examiner-in-chief serving in such capacity by designation of the Commissioner pursuant to paragraph 2 of 35 USC 7?

3. Was the Board of Appeals which rendered the decision here appealed validly constituted under 35 USC 3, 7?

Briefs were filed by appellant and the Solicitor, U.S. Patent Office, and oral argument held 3 Oct. 1966 limited to the above questions. The five judges hearing the reargument were the regular members of this court. Judge Martin died thereafter, on November 5. By consent of the parties, the Chief Judge and Judge Kirkpatrick are participating in the decision of the entire case.

The Chief Judge, [\*\*\*18] Judge Kirkpatrick and the writer are of the view that question 1, above, should be answered in the negative and that questions 2 and 3 should therefore not be considered, for the reasons more

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fully set forth below. We therefore reach the merits as dealt with in part I of this opinion.

Judge Almond's views are that question 1 should be answered in the affirmative, n6 that the answer to question [\*\*936] 2 is that 35 USC 7 authorized the board as herein constituted and that the answer to question 3, therefore, is "Yes." He reaches the merits on that basis.

n6 Judge Almond's stated view is that "this court would lack jurisdiction of the subject matter" if the appointment of one of the members of the board was defective. He does not mean, of course, that a decision of a Board of Appeals would not be subject matter of which we have jurisdiction. He means that there would be no decision of a Board of Appeals to which our jurisdiction could attach. Perhaps, in a broad sense, this is a "jurisdictional" question but it is well to bear in mind its precise nature. It is not a question of a lack of our power to decide but only an alleged lack of an object on which to exercise that power. It is somewhat confusing to regard it as a question of our jurisdiction.

[7] It seems to us that an invalid appointment would not so vitiate a board's decision that neither waiver nor abandonment of the defect would be possible. In *United States v. L. A. Tucker Truck Lines, Inc.*, 344 U.S. 33 (1952), the Supreme Court held that the Interstate Commerce Commission was not ousted of jurisdiction in a case heard by an invalidly appointed examiner. Rejecting "technical [compulsions]," the Court characterized the examiner's appointment as an "irregularity which would invalidate a resulting order if the Commission had overruled an appropriate objection" and "not one which deprives the Commission of power or jurisdiction \* \* \*." We feel that the present case is governed by analogous consideration. [\*\*\*19]

Judge Smith's view is that the answer to question 1 is "Yes," to question 2, "None," and to question 3 "No," wherefore he regards the [\*967] board's decision as a nullity and would dismiss the appeal without consideration of the merits.

#### The Answer to Question 1

In the present proceeding, on the facts above recited, we should not and cannot consider the legality of the composition of the board for three principal reasons: (1) The question was not raised on this appeal by appellant; (2) having raised the question in the Patent Office, he abandoned it by not arguing it before us (except as we

insisted on his doing so at the reargument); and (3) our limited statutory authority precludes our consideration of the question. These reasons will now be amplified.

(1) [8] As above pointed out, appellant failed to file any reason of appeal raising in this court the question of the board's constitution. That issue is therefore not before us. 35 USC 142. We are limited by statute to the rendering of decisions "confined to the points set forth in the reasons of appeal," 35 USC 144. Ample explanation of our long-established position on this point will be found in *In re LePage's* [\*\*\*20] Inc., 50 CCPA 852, 312 F.2d 455, 136 USPQ 170, and *In re Gruschwitz*, 50 CCPA 1498, 320 F.2d 401, 138 USPQ 451. See also the cases listed in the writer's dissenting opinion in the latter case. We agree with the solicitor's somewhat overemphatic statement in his supplemental brief that:

The stark unchallengeable, naked fact shown by the record is that the appellant has uttered no challenge in this Court to the composition of the Board of Appeals that can properly be considered by this Court. There is no reason of appeal in the case at bar \* \* \* which, directly, indirectly, or impliedly raises an issue as to the composition of the Board. \* \* \* The legality of the Board is not an issue in this case. The challenge, if it be a challenge, is the Court's, not appellant's.

However broadly or narrowly this court may have construed reasons of appeal in the past, the total absence of a reason bearing, even remotely or by implication, on an issue alleged to be present in a case cannot be overlooked. *LePage's* supra.

By reason of facts brought out in the discussion of the next point, "(2)," we consider appellant's action in not asking us to review the [\*968] Patent Office ruling on [\*\*\*21] the board's composition to have been quite deliberate.

(2) [9] This court has uniformly followed the sound rule that an issue raised below which is not argued in this court, even if it has been properly brought here by a reason of appeal, is regarded as abandoned and will not be considered. It is our function as a court to decide disputed issues, not to create them. *In re Baird*, 52 CCPA 1747, 348 F.2d 974, 146 USPQ 579; *In re Lorenz*, 49 [\*\*937] CCPA 1227, 305 F.2d 875, 134 USPQ (footnote 2); *In re LeBaron*, 42 CCPA 956, 223 F.2d 471, 106 USPQ 176.

It is clear from the record, briefs, and oral arguments that appellant did not present the question of the legality of the board's composition to us as an issue for us to decide before we set the case for reargument. He merely told us about the contention he made below, in the past tense, and perhaps for the very good reason that he knew it was not within our jurisdiction to consider that issue.

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The first indication that appellant dropped the issue of the board's composition in coming to this court is the absence of a reason of appeal, n7 as noted in "(1)" above. It is even clearer from a reading of his brief as a whole. [\*\*\*22] After the recitation of the events described under "1" through "6" above, the brief concludes:

n7 It happens that appellant's counsel who signed the Notice of Appeal is personally very conscious of the reasons of appeal requirement as he was counsel for the appellant in In re Gruschwitz, supra, decided about a year and a half before the filing of the appeal herein, holding reasons of appeal inadequate and dismissing the appeal.

Under the circumstances described above and apparent from the Transcript of Record, it is respectfully submitted that in the event that the application is not found allowable by the Hon. Court of Customs and Patent Appeals based on the record presently before the Court this case should be remanded to the Hon. Board of Appeals so as to afford appellant an opportunity to submit in an affidavit the tests described hereinabove [tests described in the brief but not of record] and to have this affidavit evaluated by the Patent Office prior to adjudication of this case by the Hon. Court of Customs and Patent Appeals.

Note that it is not even suggested that the case be remanded to a different board than the one which decided this case. In the "Conclusion" [\*\*\*23] of the brief, appellant summarized on the remand request, if we deem it necessary to consider the proposed affidavit to find patentability in view of the alleged new ground of rejecting made by the board, by saying,

\* \* \* such remanding is proper in view of the extraordinary situation existing in this case, as more fully discussed above and apparent from the Transcript of Record.

The significance of this statement is that by reason of the challenge below to the board's constitution and the ensuing petitions and denials, appellant never succeeded in asking the board to reconsider its decision. He never pursued a procedure which would get into the record [\*969] the affidavit of additional tests made after the board's decision and in response to the alleged new ground of rejection in the board's opinion. Now all he is asking us to do as a result of what he did, and what the Patent Office did, is to take this case history into account in considering his suggestion to remand if we do not find his claims allowable on the basis of other arguments. He is not asking us to pass on the constitution of the board. For all the brief shows, he regarded it at the time of the

initial argument [\*\*\*24] as a dead issue. In fact, it appears to us that he regarded it as dead as long ago as the filing of his final "Petition to Commissioner" on 24 Dec. 1964 in which he made this statement:

It was only after the decision of the First Assistant Commissioner on December 3, 1964 denying the petition of November 20, 1964 that counsel for applicant had any basis for considering that the original Board of Appeals had been properly constituted and therefore in submitting a request that this same Board of Appeals reconsider its decision. [Emphasis ours.]

In any event, we can find nothing prior to our setting the case for rehearing indicating any desire on the part of appellant to have us pass on the legality of the constitution of the Board, which we referred to in our prior per curiam order, in question 1, as "appellant's challenge." [\*\*938] We wish to make it clear that it was not a challenge in this court and that whatever challenge was made was solely in the Patent Office and not pursued further.

[10] Had appellant wished to pursue the matter further his proper remedy, decisions of the Commissioner on petitions not being appealable to this court, as pointed out under (3) below, [\*\*\*25] would have been by mandamus in the District Court. United States ex rel. Steinmetz v. Allen, 192 U.S. 543 (1904); Butterworth v. United States ex rel. Hoe, 112 U.S. 50 (1884); see Ex parte Frasch, 192 U.S. 566 (1904); 5 USC 1009. That would be the proper forum in which to settle the question of the legality of the board's constitution, with appeal to the Court of Appeals available to either party from an adverse decision.

(3) The basic limitation on our jurisdiction in 35 USC 141, 143 and 28 USC 1542 is to the review of "decisions" of the board. There was no decision by the board, whose decision was appealed here, that it was legally constituted. There was such a decision by the First Assistant Commissioner but there is no provision in the statutes for any appeal to this court from his decisions on petitions. They are reviewable by mandamus. Aggrieved applicants are therefore not without a remedy. But such Commissioner's decisions are not reviewable by us. To take up the legality of the board's constitution in this case would, therefore, appear to be doing by indirection what we have no authority to do directly and would amount to review of a Commissioner's decision that [\*\*\*26] the board was legally constituted, [\*970] which we have no jurisdiction to do. In re Jewett, 45 CCPA 714, 247 F.2d 953, 115 USPQ 134; see In re Mavrogenis, 19 CCPA 1063, 57 F.2d 361, 13 USPQ 25.

[11] The Patent Office has cited a number of our decisions to support the statement, which is true, that we

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will not ordinarily interfere in matters of Patent Office practice. We find them beside the point as the question here is not one of Patent Office practice. It is a matter of whose decision we are being asked to review, the board's or the Commissioner's. We have jurisdiction to review the former but not the latter. n8

n8 On how the Patent Office internally divides the determination of questions relating to patent applications between the board and the Commissioner, which in turn determines the appropriate route of review thereof, see Sec. 1201, Manual of Patent Examining Procedure and Rules of Practice 181 and 191.

#### Conclusion

The rejection by the examiner, affirmed by the board, is reversed. The case is remanded with respect to the board's added ground of rejection for further proceedings consistent with this opinion.

#### CONCURBY:

ALMOND

#### CONCUR:

ALMOND, Judge, concurring. [\*\*\*27]

The jurisdiction of this court in ex parte patent cases is limited to appellate review of a "decision of the Board of Appeals." 35 USC 141, 28 USC 1542. Whether a panel purporting to render a decision on behalf of the Board of Appeals is capable of rendering a valid decision depends upon whether that "board" panel is constituted in accordance with 35 USC 7. If a given panel is clearly illegally constituted in violation of the terms of section 7, neither the Commissioner of Patents nor any other Patent Office executive could make any decision of such a panel into a valid "decision of the Board of Appeals." To permit this would be to allow administrative officials to override the clear intent of Congress as expressed in the Patent Act of 1952.

I regret that I cannot agree with the majority's decision that this court is precluded from questioning the decision of the First Assistant Commissioner that the decision of the "board" panel in this case is a binding decision of the Board of Appeals. In my view, the majority has expanded the jurisdiction of this court of limited jurisdiction to cover review of not only (1) decisions of the [\*\*939] Board of Appeals but also (2) decisions [\*\*\*28] which the Commissioner represents to be decisions of the Board of Appeals, regardless of whether or not they are legally such.

I am not concerned with whether appellant raised the issue of jurisdiction either in the Patent Office or before this court, or with whether the issue is covered by his Reasons of Appeal, or with whether appellant abandoned the issue. It is too well-settled to require citation [\*971] of authority that jurisdiction of the subject matter is never waived in a pending case. This is the unvarying rule even in courts of general jurisdiction, and it should be applicable with special force in this court of limited jurisdiction.

It would also be a matter of no concern if appellant, the Commissioner, and counsel for both parties all agreed that this court has jurisdiction of the subject matter of this appeal. The parties before a Federal court cannot confer appellate jurisdiction by their mere consent; only Congress can do so. Since Congress has confined our jurisdiction in ex parte patent cases to appellate review of a "decision of the Board of Appeals" under section 141, I believe we should consider the issue of whether the questionable "board" panel [\*\*\*29] in the present case was legally constituted under section 7, so that it could conceivably render a valid decision on behalf of the "Board of Appeals." If the "board" panel could not do so because of its illegal composition, this court would lack jurisdiction of the subject matter under the statute.

The pertinent portion of 35 USC 7 is set forth in a footnote to the majority opinion. Especially important is the proviso that "not more than one such primary examiner shall be a member of the Board of Appeals hearing an appeal."

I find no patent ambiguity either in the quoted proviso or elsewhere in section 7. To the contrary, the terms are clear, plain, and unambiguous. In such a situation it is well settled that recourse to legislative history is precluded. *Lake County v. Rollins*, 130 U.S. 662, 670-671; *United States v. Missouri Pacific Railroad Co.*, 278 U.S. 269, 277-278; *Cohn & Lewis v. United States*, 25 CCPA 220, 226; *United States v. Kung Chen Fur Corp.*, 38 CCPA 107, 117, 188 F.2d 577, 584.

The "board" panel whose decision is on appeal here consisted of a regular member of the Board of Appeals with the rank of examiner-in-chief, a primary examiner, and a supervisory examiner [\*\*\*30] (of higher grade than a primary examiner). The statute, 35 USC 7, specifically provides that the Commissioner "may designate any patent examiner of the primary examiner grade or higher" as an acting examiner-in-chief, and that any "examiner so designated shall be qualified to act as a member of the Board of Appeals." The only other statutory limitation of significance on the facts of this case is the aforementioned proviso that "not more than one such primary examiner shall be a member of the

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Board of Appeals hearing an appeal." Only one primary examiner sat on the "board" panel whose decision is here on appeal. Therefore, I think that the panel was legally constituted in accordance with the unambiguous terms of section 7. *Ex parte Beyerstedt*, 103 USPQ 189 (Bd. Appls. 1952). Consequently, [\*972] its decision is entitled to be regarded as a "decision of the Board of Appeals" which we have statutory jurisdiction to review.

I think it should be mentioned that, while individual Congressmen or members of committees might well have intended for the proviso to read "not more than one such designated examiner shall be a member of the Board of Appeals," the actual language used in [\*\*\*31] the statute is clear and plain to the effect that "not more than one such primary examiner shall be a member" of a "Board of Appeals" panel. The class of "designated" examiners-in-chief would clearly include both (1) primary examiners and (2) examiners of higher grade than primary examiners. Since Congress enacted a statute containing the unambiguous terms "primary examiner" in the proviso, the statute must be held to [\*\*940] mean exactly what it says, notwithstanding the strong possibility that a minority of individual Congressmen and committee members may have intended the expression in the proviso to read "designated examiner" or "acting examiner-in-chief."

For the above reasons, I have considered the merits of this controversy, and I agree with the majority on the merits.

#### **DISSENTBY:**

SMITH

#### **DISSENT:**

SMITH, Judge, dissenting.

The majority opinion of this court rests on the novel concept that an Article III Federal Court does not have jurisdiction to inquire into the legality of an administrative quasi-judicial board whose decision it has been requested to review. This concept is unsupported by authority or precedent and seems to me to be lacking in both reason and logic. The [\*\*\*32] power to inquire into the legality of such a board is a necessary and inherent power of the reviewing court. Such power is the court's only safeguard against putting its judicial imprimatur on a legal nullity. Our obligation is to dispose of the present controversy in a judicial matter to the end that the duty of this court will not be comprised. As we recently stated, *In re Fischer*, 53 CCPA 1211, 360 F.2d 230, 231, 149 USPQ 631, 32-33:

\* \* \* The judicial nature of the proceedings in this court, no matter at what stage, is no longer in question. *Lurk v. United States*, 370 U.S. 530 (1962) and *Brenner v. Manson*, 383 U.S. 519, 148 USPQ 689 (1966). As stated by the Supreme Court, the bulk of this court's work involves the disposition of cases arising under Article III of the Constitution, that is cases arising under Federal law and cases to which the United States is a party. These cases and controversies are and must be disposed of in a judicial manner. \* \* \* [Emphasis added.]

Three "principal reasons" are advanced to support the majority position:

(1) The question was not raised on this appeal by appellant;

(2) having raised the question in the Patent Office, he abandoned [\*\*\*33] it by not arguing it before us (except as we insisted on his doing so at the reargument); and

(3) our limited statutory authority precludes our consideration of the question.

[\*973] While Judge Almond and I differ as to how the issue of the legal competency of the board is to be resolved, we have no differences as to the inherent authority of this court to pass upon the issue here raised.

As I see it, the fallacy in the majority opinion results from confusing the issues of an appeal, required to be raised under 35 USC 141, with the basic authority of this court, wholly independent of any reason of appeal or other limitations defined in section 141, to consider whether an appeal lies from the "decision" rendered by an alleged illegally constituted tribunal.

#### **The Issue of Jurisdiction**

To emphasize the agreement between Judge Almond and myself on this issue, his concurring opinion contains the statement with which I am in full and entire agreement which I here quote and embody in this opinion:

I am not concerned with whether appellant raised the issue of jurisdiction either in the Patent Office or before this court, or with whether the issue is covered by his Reasons [\*\*\*34] of Appeal, or with whether appellant abandoned the issue. It is too well-settled to require citation of authority that jurisdiction of the subject matter is never waived in a pending case. This is the unvarying rule even in courts of general jurisdiction, and it should be applicable with special force in this court of limited jurisdiction.

It would also be a matter of no concern if appellant, the Commissioner, and counsel for both parties all agreed that this court has jurisdiction of the subject

matter of this appeal. The parties before a Federal court cannot confer appellate jurisdiction by their [\*\*941] mere consent; only Congress can do so. Since Congress has confined our jurisdiction in ex parte patent cases to appellate review of a "decision of the Board of Appeals" under section 141 I believe we should consider the issue of whether the questionable "board" panel in the present case was legally constituted under section 7, so that it could conceivably render a valid decision on behalf of the "Board of Appeals." If the "board" panel could not do so because of its illegal composition, this court would lack jurisdiction of the subject matter under the statute.

The [\*\*\*35] basic consideration to which we must give effect, it seems to me, is set forth in the following statement from 5 C.J.S. Appeal & Error § 1355, Want of Jurisdiction (1958):

Inasmuch as lack of jurisdiction in the appellate court renders any decision which it might make on the merits a nullity, if such lack of jurisdiction is patent, or can be readily ascertained by an examination of the record, it warrants the dismissal \* \* \* (citations omitted, 9 columns of cases).

The thought that our decision on the merits of this appeal may be a nullity is appalling. Yet the majority requires the court to proceed to precisely this end. What we have reviewed and the majority decision thereon may well be a nullity.

The alleged jurisdictional defect here "can be readily ascertained by an examination of the record." The composition of the board is stated in the record and the statute is before us. Further, appellant [\*974] has raised the issue below as to the legality of the board. However, the majority proceeds upon the assumption that in expressing a contrary view on this point one is creating issues and acting outside the scope of authority vested in this court. I do not accept [\*\*\*36] this premise but remain of the view that the issue of jurisdiction existed in this case from the moment the members of the board panel were designated by the Commissioner. This being true, it is my view that this court has no jurisdiction to consider the merits of the appeal for "An appeal from an inferior court or tribunal which has no jurisdiction of a cause confers no jurisdiction on the appellate court," 4 C.J.S. Appeal & Error § 41 (1957). Our jurisdiction as to this issue extends as far as the jurisdiction of any Article III Federal appellate court. "The appellate court has jurisdiction to determine the lack of jurisdiction of the lower court." Id. at pp. 160-61, citations omitted. An appellate court which lacks jurisdiction cannot acquire it by its decisions or otherwise. Because jurisdiction here depends on the statute, consent, agreement, stipulation, waiver or abandonment cannot operate to confer jurisdiction. 4 C.J.S. Appeal & Error §§ 42-44 (1957).

I do not agree with the underlying view of the majority that the determination of the absence or presence of jurisdiction in this sense has been restricted by 35 USC 141. Instead, it is my view that:

The appellate [\*\*\*37] court has the duty to determine the question of jurisdiction on its own motion, and it will not ignore a want of jurisdiction because the question is not raised or discussed by either party. (Citations omitted, 15 columns of cases). 4 C.J.S. Appeal & Error § 345 Determination of Questions of Jurisdiction.

In footnote 2 of the majority opinion, there is the generalization that Judge Almond has injected confusion into this matter by maintaining we have no jurisdiction over the subject matter. Lest my views be found similarly "confusing," I shall delineate precisely the type jurisdiction to which I refer. In approaching this task I am well aware of Justice Frankfurter's admonishment that "Jurisdiction" is indeed "a verbal coat of too many colors." United States v. L. A. Tucker Truck Lines, Inc., 344 U.S. 33, 39 (1952) (dissenting opinion).

Jurisdiction in the sense in which I have used it and shall use it here is the power to hear and determine the controversy [\*\*942] presented, in a given set of circumstances. In re Labor Board, 304 U.S. 486, 494 controversies, and in a more restricted sense is that in 21 C.J.S. Courts § 15 (1940):

The jurisdiction of a court is in [\*\*\*38] a broad sense its power to hear and determine controversies, and in a more restricted sense its power to adjudicate a particular case.

In In re Labor Board, *supra*, the issue was whether the Court of Appeals was without power to determine a given controversy involving [\*975] the Labor Board. After the above statement concerning jurisdiction, the opinion continues:

\* \* \* A court has jurisdiction, in another use of the term, to examine the question whether that power is conferred upon it in the circumstances disclosed, but if it finds such power is not granted it lacks jurisdiction of the subject matter and must refrain from any adjudication of rights in connection therewith. 304 U.S. at 494.

While an appeal had been filed from an order of the labor board, the transcript of record had not been filed by the labor board as required by law. The court found that the Court of Appeals was without power to determine the controversy.

Whether jurisdiction is defined as the power to review only valid decisions or whether it is viewed as the power to review only that subject matter which inures from a valid decision, the same result is reached. In

support of Judge Almond, it would [\*\*\*39] seem to be the better view that subject matter inuring from "decisions" of illegally constituted board of appeals is beyond our power of review. Thus, I have no quarrel with, nor do I find confusion in, Judge Almond's conclusion that decisions by illegally constituted boards are "subject matter" over which we lack jurisdiction to review. And insofar as the jurisdiction in issue here depends on a statute, it may be raised for the first time on appeal "since jurisdiction of subject matter cannot be waived or conferred by the parties." 4 C.J.S. Appeal & Error §§ 234, 242 (1957). Here, of course, an objection was made below.

In principle, I see no distinction between this court and the Federal Circuit Courts of Appeals concerning the fact that each is a court of limited appellate jurisdiction. Congress has provided, 28 USC 1258, that "The courts of appeals shall have jurisdiction of appeals from all final decisions of the district courts of the United States \* \* \*." Numerous decisions are available to support the proposition that courts of appeal have both the jurisdiction and the duty to determine whether they have the power to hear and determine the controversy sought to be presented, [\*\*\*40] that the issue of jurisdiction need not be raised by the parties, that the parties cannot confer jurisdiction, and that lack of jurisdiction in the lower court requires that the appeal be dismissed. See 28 USC Annot. § 1291, notes 7, 8, 12, 13, 16, 17, 255, 256, 294, 327; 28 USC Annot. § 1331, notes 298-299. The above principles are indeed, in Judge Almond's view, "too well settled" to require the citation of authorities.

The basic consideration, which transcends all other considerations, it seems to me, is that our jurisdiction does not extend to reviewing the merits of decisions rendered by a legally incompetent board of appeals. "Decisions" which as a matter of law are a legal nullity [\*976] are beyond the scope of our powers of review. See, e.g., Restatement of Judgments § 7, Comment (f).

The majority opinion fails to honor this basic consideration. Instead, it gives controlling effect to technical procedural considerations. To me such considerations are subservient at best, for otherwise, under the guise of restricting appellate review (as appellate courts should lest they be accused of unlawfully expanding their powers of review, 21 C.J.S. Court § 28 (1940)), [\*\*\*41] the majority actually has expanded the appellate review [\*\*943] of this court to anything a board of appeals denominates a "decision," regardless of the legality of the board. This conclusion is inevitable as the majority gratuitously demonstrates to the Patent Office that the solution to its dilemma insofar as review by this court is concerned is simply to recognize the Commissioner of Patents as the only one to

review and pass on challenges to the composition of boards of appeals.

The majority clearly suggests that by following this course of action there will never be a "decision" by a board as to its own legal competency, and hence no basis for an appellate review of the matter in this court. This, it seems to me, approves the novel proposition that the extent of the Commissioner's authority is to be determined by the Commissioner and he may dictate what we can review notwithstanding the illegality of the board whose decision is appealed. I am unable to reconcile this position with the basic consideration that "Administrative determinations must have a basis in law and must be within the granted authority. \* \* \* An agency may not finally decide the limits of its statutory [\*\*\*42] power. That is a judicial function." Social Security Board v. Nierotko, 327 U.S. 358, 369 (1946). Also, "The determination of the extent of authority given to a delegated agency by Congress is not left for the decision of him in whom authority is vested." Addison v. Holly Hill Co., 322 U.S. 607, 616 (1944). While I recognize the administrative inconvenience which would result from adoption of my views, the question for me is one of principle rather than expediency. It comes down to this: can the Commissioner by a decision so interpret his authority to designate boards of appeal as to divest this court of jurisdiction of this issue in an appeal from a decision of a board allegedly improperly designated by him? My view is that it is beyond the authority of the Commissioner thus to determine or limit the extent of this court's jurisdiction. I am unwilling to accept everything the Commissioner determines as being beyond our jurisdiction merely because it carries the label of Commissioner's decision.

Under the theory of the majority it may well be that some dissatisfied applicant will exercise his right under 35 USC 145 to go to the District Court, D.C. where review of the Commissioner's [\*\*\*43] action in [\*977] setting up an illegal board may be gained. However, review here under 35 USC 141 also is a right given the applicant. According to the majority, review is limited to what the board decided. This seems to limit an applicant's statutory rights and subject him to the delay and expense of multiple proceedings. The majority here would require, as I see it, that an applicant, not desiring a trial de novo in the district court on the merits, but wishing a review on the merits here, prosecute two actions simultaneously. The do novo proceeding in the district court would involve the question of the legality of the board and an appeal here would concern the issue decided by such board. See 35 USC 141, 28 USC 1542: Cf. Two Guys from Harrison-Allentown, Inc. v. McGinley, 273, F.2d 954 (3rd Cir. 1959). It seems to me that the reasoning of the majority seriously impairs an

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appellant's right of appeal to this court, beyond any limitations I find in the statute, see 28 USC 1542, "The Court of Customs and Patent Appeals shall have jurisdiction of appeals from decisions of: (1) the Board of Appeals." Manifestly, the statute means valid decisions.

#### Reasons of Appeal [\*\*\*44]

Is our decision on the issue of the composition of the board foreclosed because appellant failed to expressly delineate it in his reasons of appeal? The majority holds that it is. I do not agree. The general rule is that only those errors properly assigned or specified may be considered on appellate review, see Congress of Indus. Organizations v. McAdory, 325 U.S. 472 (1945); 5 C.J.S. Appeal & Error § 1218 (1958). However, the general rule is ordinarily not applied to [\*\*944] questions of jurisdiction. 5 C.J.S. Appeal & Error § 1221 (1958). And "Want of jurisdiction may be regarded as fundamental error which will be noticed, on review, without being assigned as error." 5 C.J.S. Appeal & Error § 1239(b). Thus an appellate court should notice its own want of jurisdiction, see e.g., White v. Crandall, 105 Fla. 70, 137 So. 272 and authorities cited at 5 C.J.S. Appeal & Error § 1239(b) at fn. 48, or the want of jurisdiction in the lower court, see e.g., *id.* at fn. 49, citing decisions from 16 states.

The majority opinion refers the reader to *In re LePage's, Inc.*, 50 CCPA 852, 312 F.2d 455, 136 USPQ 170, as authority for "our long-established position" concerning the failure [\*\*\*45] to assign questions in the reasons of appeal. An examination of the opinion in *LePage's, Inc.*, shows that we at least considered then that jurisdictional matters may be raised "at any time." 50 CCPA at 854, 136 USPQ at 171. Judge Rich at that time was "not at all convinced that the absence of reasons [of appeal] is a 'jurisdictional' defect, depriving us of the power to act if we choose to do so." 50 CCPA at 856, 136 USPQ at 173.

[\*978] In *In re Gruschwitz*, 50 CCPA 1498, 320 F.2d 401, 138 USPQ 451, cited by the majority as authority, we adhered to the decision in *LePage's, Inc.*. Although it is my view that the question of the composition of the board transcends any reasons of appeal, it seems that the present record amply qualifies under the test then advocated by Judge Rich in dissent that: "The really significant intendment of the statute is that we are a court of review and are not to act in any case on new grounds which we originate but are to restrict ourselves \* \* \* to passing on the legality of what has been decided below." 50 CCPA at 1508, 138 USPQ at 457.

#### The Legal Competency of the Board

Returning now to the basic consideration, is the decision here in issue the [\*\*\*46] decision of a legally incompetent board? I recognize the general rule that where a judge or commissioner assumes to act under lawful authority and no objection is made to his authority when he exercises power within the limits prescribed by law, this authority cannot be assailed on appeal. 4 C.J.S. Appeal & Error § 258(h) (1957). The rule is otherwise where there is a want of authority because the judgment is void for want of jurisdiction. *Ibid.* The controlling question in determining whether authority exists is whether the person acting has been selected by the authority designated and in the manner prescribed by law. 48 C.J.S. Judges § 101(e) (1947).

The problem of whether a judge has acted under lawful authority has occurred most often in situations involving special judges, i.e., one who acts by virtue of special appointment. The rule is that where the selection of a special judge is not in accordance with the law there is no judge and the entire proceeding before him is a nullity. See, e.g., *Annoni v. Blas Napal's Heirs*, 94 F.2d 513 (1st Cir. 1938). The principle involved is more commonly recognized as the so called "de facto" doctrine. In order that there may be a [\*\*\*47] de facto judge, there must be a de jure office to be filled. *Norton v. Shelby County*, 118 U.S. 445 (1886). And where there is no legal authority for the selection of a special judge, a person so attempting to act is neither a judge de jure nor a judge de facto and the proceedings are null and void. 48 C.J.S. Judges § 107 (1947). The necessary consequences are as follows:

\* \* \* Following the rule that there cannot be a de facto officer if a de jure officer is discharging the functions of the office in question, if the regular judge is presiding and assumes to act in the particular cause, a special judge irregularly appointed, who assumes to act, is not even a de facto judge. \* \* \* *Id.* at p. 1130.

Before considering whether a valid relationship may be established between special judges and special panels, I think it appropriate to consider the Supreme Court's decision in *Glidden Co. v. Zdanok*, [\*\*945] 370 U.S. 530 (1961) which also decided the companion case of *Lurk v. [\*979] United States*. As my colleagues well know, Judge Jackson, a retired member of this court, was involved in the companion case. He was designated to preside over a criminal trial in the District [\*\*\*48] Court of the District of Columbia and the validity of this designation was questioned in the Court of Appeals, D.C. Certiorari was granted by the Supreme Court (368 U.S. 814, 815) limited to the question "whether the judgment in either was vitiated by the respective participation" of the named judges. 370 U.S. at 533. The Supreme Court's opinion best explains and sets forth the point I wish to make, 370 U.S. at 535-36:

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No challenge to the authority of the judges was filed in the course of the proceedings before them in either case. The Solicitor General, who submitted briefs and arguments for the United States, has seized upon this circumstance to suggest that the petitioners should be precluded by the socalled de facto doctrine from questioning the validity of these designations for the first time on appeal.

Whatever may be the rule when a judge's authority is challenged at the earliest practicable moment, as it was in *United States v. American-Foreign S.S. Corp.*, 363 U.S. 685, in other circumstances involving judicial authority this Court has described it as well settled "that where there is an office to be filled and one acting under color of authority fills the office and [\*\*\*49] discharges its duties, his actions are those of an officer de facto and binding upon the public." *McDowell v. United States*, 159 U.S. 596, 602. The rule is founded upon an obviously sound policy of preventing litigants from abiding the outcome of a lawsuit and then overturning it if adverse upon a technicality of which they were previously aware. Although a United States Attorney may be permitted on behalf of the public to upset an order issued upon defective authority, *Frad v. Kelly*, 302 U.S. 312, a private litigant ordinarily may not. *Ball v. United States*, 140 U.S. 118, 128-129.

The rule does not obtain, of course, when the alleged defect of authority operates also as a limitation on this Court's appellate jurisdiction. *Ayrshire Collieries Corp. v. United States*, 331 U.S. 132 (three-judge court); *United States v. Emholt*, 105 U.S. 414 (certificate of divided opinion). In other circumstances as well, when the statute claimed to restrict authority is not merely technical but embodies a strong policy concerning the proper administration of judicial business, this Court has treated the alleged defect as "jurisdictional" and agreed to consider it on direct review even though not [\*\*\*50] raised at the earliest practicable opportunity. E.g., *American Construction Co. v. Jacksonville, T. & K.W.R. Co.*, 148 U.S. 372, 387-388.

I fail to see where there is room for argument when the authority of a special judge is challenged that the challenge be timely or that the de facto doctrine is applicable. The clear question presented was whether the authority designating Judge Jackson was valid and exercised in accordance with law. Stripping the instant appeal to its essentials, the question here is not whether the board acted as a de facto body by virtue of its designation by the Commissioner. The question is whether the Commissioner has authority to designate boards as composed in the instant case. If not, then there can be no exercise of lawful authority by such boards because the law has not created or provided for such boards.

[\*980] May meaningful distinctions requiring an opposite result be drawn between special federal judges and designated examiners-in-chief; [\*\*946] or panels of federal judges and Patent Office boards? I think not. First, consider panels of federal judges and Patent Office boards. It has been established that where the law requires that [\*\*\*51] a controversy be determined by a prescribed panel of federal judges, the judgment of a panel composed otherwise than provided by law must be vacated. *United States v. American-Foreign SS. Corp.*, 363 U.S. 685 (1960). Herein Judge Medina participated in an en banc hearing, 28 USC § 46(c). The decision was rendered after Judge Medina retired. Because the statute provided that a "court en banc shall consist of all active circuit judges of the circuit," the court found that "a retired circuit judge is without power to participate," 363 U.S. at 691, and the judgment was vacated. Significantly, the court noted that the policy of having only active circuit judges determine the major doctrinal trends should be given effect. The competence of Judge Medina was not questioned. Rather, the question was whether the panel was lawfully composed. Here, as discussed infra, there exists a definite policy that temporary examiners-in-chief be designated only when necessary in view of the work load and that appeals be heard by examiners-in-chief regularly appointed.

*In Ayrshire Collieries Corp. v. United States*, 331 U.S. 132 (1947), a three judge court was empaneled concerning a controversy involving [\*\*\*52] the enforcement of an order of the Interstate Commerce Commission. While three judges participated in the hearing, because of one member's illness only two judges participated in the judgment. The court found that the judgment entered by the two judges was void and without statutory authority. According to the court, "we have no alternative but to vacate the judgment and dismiss the appeal." 331 U.S. at 144. The Commissioner of Patents was faced with the same fact situation concerning a retiring board member after hearing and before decision in *Ex parte Nichols*, 78 USPQ 288 (Com. Pat. 1947). Appellant there argued that in view of the Ayrshire decision, "decisions" of 2-member boards were void and without statutory authority. The Commissioner designated a 3-member board to hear the appeal, 78 USPQ 295 (Bd. App. 1947). The parties had no difficulty in appreciating that the issue was whether an appeal would lie from a defect in the board's composition. The solution was to designate a different board.

I find it clear from the decisions in Ayrshire and *American-Foreign SS.* that a panel of federal judges, not constituted according to law, acts without authority. Should a panel of [\*\*\*53] the Board of Appeals be treated differently? I think not as this appears to have been settled in the leading case of *Norton v. Shelby*,

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supra. Therein the Supreme Court had before it the question of the legal effect of the actions of a [\*981] state board of commissioners. The Supreme Court stated it was "relieved from the necessity of passing" on the question of the "lawful existence and authority of the county commissioners," 118 U.S. at 436, as the highest court of the state had determined that the law passed by the state legislature creating the board was null and void. I would inject at this point that this is the question that I maintain is before us: the lawful existence and authority of certain panels of the Board of Appeals. The Supreme Court was faced with the argument that the board was at least de facto in nature prior to the decision of the state court. In answer, the opinion states, 118 U.S. at 441, 444:

But it is contended that if the act creating the board was void, and the commissioners were not officers *de jure*, they were nevertheless officers *de facto*, and that the acts of the board as a *de facto* court are binding upon the county. This contention is met [\*\*\*54] by the fact that there can be no officer, either *de jure* or *de facto*, if there be no office to fill. As the act attempting to create the office of commissioner [\*\*947] never became a law, the office never came into existence. Some persons pretended that they held the office, but the law never recognized their pretensions, nor did the Supreme Court of the State. Whenever such pretensions were considered in that court, they were declared to be without any legal foundation, and the commissioners were held to be usurpers.

\* \* \*

Numerous cases are cited in which expressions are used which, read apart from the facts of the cases, seemingly give support to the position of counsel. But, when read in connection with the facts, they will be seen to apply only to the invalidity, irregularity, or unconstitutionality of the mode by which the party was appointed or elected to a legally existing office. None of them sanctions the doctrine that there can be a *de facto* office under a constitutional government, and that the acts of the incumbent are entitled to consideration as valid acts of a *de facto* officer. \* \* \*

Since the question has been raised that the board is illegally constituted [\*\*\*55] and the Commissioner has no authority to designate such boards, I fail to see how we can hide behind timeliness, abandonment or failure to assign it as error.

One last relationship remains to be examined. Should the result be different because the cases above did not involve a board or panel as herein involved? The majority opinion infers that we are here dealing with an "invalid appointment" and refers to the reader to *United States v. L. A. Tucker Truck Lines, Inc.*, 344 U.S. 33

(1952). This is clearly not the situation before the court as no challenge has been raised as to the competence or appointment of any member of the board. We are, to repeat, concerned with the authority of the Commissioner to designate such boards, not individual members, and the lawfulness of boards so designated.

The decision in *Tucker* has some value but for a different reason. It held that the appointment of a hearing examiner (comparable [\*982] to a patent examiner?) contrary to certain terms of the Administrative Procedures Act as set forth in the opinion, was not such an irregularity which would deprive the Commission "of power or jurisdiction, so that even in the absence of timely objection [\*\*\*56] its order should be set aside as a nullity." 344 U.S. at 38. Even in the *Tucker* case a timely objection would have been honored! Here objection was not made in an appellate court for the first time, as in *Tucker*.

Also, it is clear we are not dealing here with persons appointed according to the Administrative Procedure Act; we are here dealing with persons who, by virtue of regular appointment, are appointed by "the President, by and with the advice and consent of the Senate." 35 USC 3. They are an independent body whose tenure is not controlled by the Commissioner.

I do not therefore find the *Tucker* decision dispositive of the issue raised here. I think we should look for guidance from cases involving persons having more comparable, but higher, statute, i.e., federal judges and not examiners, where the question or issue involved was the existence of authority to designate panels and the lawfulness of the exercise of power by the panel as an entity.

I regret that I have been required to delve into the jurisdictional aspect of this case at such length. Whether the fault lies in an inability to articulate succinctly or the complexity of the question, I firmly believe that the [\*\*\*57] majority errs in its reasoning in support of its conclusion that the legality of the board is not before us.

While I do not believe the issue can be avoided, I also believe that the issue is so important that it should be decided and "judicial ingenuity" should not be used to "find a way to escape it." *Clay v. Sun Insurance Office, Ltd.*, 363 U.S. 207, 214 (1960) (dissenting opinion). [\*\*948]

#### Interpretation of 35 USC 7

I will now consider the issue of the validity of the board. I do not agree with Judge Almond that the terms of 35 USC 7 are unambiguous. A full statement of the rule or principle relied on by Judge Almond is found in 2 Sutherland, *Statutory Construction* § 4702 (3rd ed. 1943) and reads as follows:

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### § 4702. STATUTES CLEAR AND UNAMBIGUOUS - THE EXISTING LAW.

Although the following rules seem delusive and unsatisfactory to the author, they have been repeated so frequently in the judicial decisions, it is only fair to record them here:

"When the intention of the legislature is so apparent from the face of the statute that there can be no question as to its meaning, there is no room for construction."

"It is not allowable to interpret what has no need [\*\*\*58] of interpretation."

"There is no safer nor better settled canon of interpretation than that when language is clear and unambiguous it must be held to mean what it plainly expresses."

[\*983] These rules are, of course, appropriate when the words of a statute are plainly expressive of an intent not rendered dubious by the context of the act. The court in interpreting the act must declare it according to the words of the act for they are in fact expressive of the sense and intent of the act and any other interpretation would thwart that interpretation. \* \*

\* \* \*

One who contends that a section of an act must not be read literally must show either that some other section of the act expands or restricts its meaning, then the section itself is repugnant to the general purview of the act, or the act considered in pari materia with other acts, or with the legislative history of the subject matter, imports a different meaning. If the language is plain, unambiguous and uncontrolled by other parts of the act or other acts upon the same subject the court cannot give it a different meaning. But the limited meaning of words will be disregarded when it is obvious from the act itself [\*\*\*59] that the legislature intended that it be used in a different sense than its common meaning.

First, I do not find 35 USC 7 "plainly expressive of an intent not rendered dubious by the context of the act." Second, I find that the main paragraph of section 7 restricts the meaning of the exception stated therein and that the exception, as construed by the Commissioner, is repugnant to the general purview of the section. Further, the legislative history imports the true meaning to be attributed to the exception in section 7.

The rules of statutory construction are numerous and frequently in conflict. Ascertaining the "legislative intent" can be most difficult. As to this latter term, Justice Frankfurter once stated in "Some Reflections on the Reading of Statutes, 47 Col.L.Rev. 528, 538 (1947):

\* \* \* All these years I have avoided speaking of the "legislative intent" and I shall continue to be on my guard against using it. The objection to "intention" was indicated in a letter by Mr. Justice Holmes which the recipient kindly put at my disposal:

Only a day or two ago - when counsel talked of the intention of a legislature, I was indiscreet enough to say I don't care what their [\*\*\*60] intention was. I only want to know what the words mean. Of course the phrase often is used to express a conviction not exactly thought out - that you construe a particular clause or expression by considering the whole instrument and any dominant purposes that it may express. In fact intention is a residuary clause intended to gather up whatever other aids there may be to interpretation beside the particular words and the dictionary.

If that is what the term means, it is better to use a less beclouding characterization. Legislation has an aim; [\*\*949] it seeks to obviate some mischief, to supply an inadequacy, to effect a change of policy, to formulate a plan of government. That aim, that policy is not drawn, like nitrogen, out of the air; it is evinced in the language of the statute, as read in the light of other external manifestations of purpose. That is what the judge must seek and effectuate, and he ought not to be led off the trail by tests that have overtones of subjective design. We are not concerned with anything subjective. We do not delve into the mind of legislators or their draftsmen, or committee members. \* \* \* [\*984] What is the aim of the statute, [\*\*\*61] what is the policy sought to be effected and what do the words mean? Justice Frankfurter further commented:

Often the purpose or policy that controls is not directly displayed in the particular enactment. Statutes cannot be read intelligently if the eye is closed to considerations evidenced in affiliated statutes, or in the known temper of legislative opinion. Thus, for example, it is not lightly to be presumed that Congress sought to infringe on "very sacred rights." This improbability will be a factor in determining whether language, though it should be so read if standing alone, was used to effect such a drastic change.

As to the meaning of a statute, Professor M. R. Cohen once stated, in "The Process of Judicial Legislation," from "Law and the Social Order" (1933), as follows:

What is the meaning of a statute: The rule that courts must interpret the meaning of the statute rather than the intention of the legislature is frequently conceived as if it implied that the words of a statute are sufficient to determine every question that arises under it. This would lead to a revival of the stage of strict law in which the strictly literal meaning of words is followed no matter

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[\*\*\*62] how unjust or absurd the consequences. Doubtless there are many who still believe juristic interpretation to be a kind of magic whereby a whole body of law is made to spring out of a few words or phrases. But most modern jurists are outgrowing the superstitious awe of the printed word and its magic potency. The meaning of a statute consists in the system of social consequences to which it leads or of the solutions to all the possible social questions that can arise under it. These solutions or systems of consequences cannot be determined solely from the words used, but require a knowledge of the social conditions to which the law is to be applied as well as of the circumstances which led to its enactment. \* \* \*

Thus while I feel justified in relying on traditional rules of statutory "construction" which I believe fully support my conclusions as to the meaning of the exception to section 7, I also draw my conclusions from considerations advanced by the above writers for too often interpretation rests wholly on which rules are applied.

What is the meaning of the terms in 35 USC 7 "any patent examiner of the primary examiner grade or higher." Further, what is the meaning of [\*\*\*63] the terms, "No more than one such primary examiner shall be a member of the Board of Appeals hearing an appeal." Do the second terms designate a title or individual or do they designate the class defined in the first terms? Is there any connection between the terms used? Should the terms be taken literally or do they mean that patent examiners having a level of expertise substantially equal to or slightly above a primary examiner are singled out for special treatment? In other words, does the statute operate to insure boards having a given level of ability and experience or is it wholly dependent on job titles? If the latter is accepted as being correct, a reorganization of job titles in the Patent Office can insure that nearly all patent examiners would be "qualified" for designation as acting examiners-in-chief. A host of [\*985] considerations such as the above compel [\*\*950] the conclusion that 35 USC 7 is not "clear on its face."

The foregoing considerations but underscore what seems to me to be the patent ambiguity in the language of the statute before us. As such it seems to me we are required to ascertain, if we can, what the meaning of the words must be. Should [\*\*\*64] the prohibitions in section 7 become but a "name game" in which the ambiguous term "primary examiner or higher" allows the Commissioner, by changing the names and responsibilities of Patent Office personnel, to circumvent the limitations on his authority spelled out in section 7?

The problem requires an initial consideration of the historical background of the present appeal procedure in

the Patent Office. Such a consideration aids in understanding the entire question and placing it in its proper frame of reference. When so considered, we find the problem to have been a long standing one. The present controversy viewed in this context is little more than another gambit in what appears to have been a more or less continuing contest between Congress and Commissioners of Patents concerning an independent judicial or quasi-judicial review of the Commissioner's decisions refusing a patent to an applicant. An ably written and carefully documented history of this contest was prepared by now Examiner-in-Chief Federico (who happens to have been the only Presidential appointee on the board here involved) in an article entitled "Evolution of Patent Office Appeals," 22 J.P.O.S. 838-920 (1940). [\*\*\*65] I have drawn freely from this article in the following portions of this opinion. As Mr. Federico points out, appeals from the actions of the officials charged with the granting of patents were not contemplated by the Patents Acts of 1790 and 1893. Statutory provisions for appeals as such first appeared in the Patent Act of July 4, 1836. The Senate Committee which introduced the bill resulting in the Act stated in its report:

It is obvious that the power [to refuse patents in those cases where patents should not be granted] must, in the first instance, be exercised by the department charged with his branch of the public service. But as it may not be thought proper to intrust its final exercise to the department, it is deemed advisable to provide for an occasional tribunal to which an appeal may be taken. n3 [Emphasis added.]

n3 Report of the select committee to take into consideration the state and condition of the Patent Office, and the laws relating to the issuing of patents for new and useful inventions and discoveries. 24th Congress, 1st Session, Senate Document No. 338, April 28, 1836. Reprinted at 18 J.P.O.S. 854, 858.

The review contemplated by this Act was [\*\*\*66] an appeal to a board of three arbitrators called a "board of examiners." These three "arbitrators" were appointed by the Secretary of State for each case. It is significant to note that in this first appellate procedure, the "arbitrators" were not appointed by nor subservient to the Commissioner of Patents for their authority to act. This authority came directly from Congress [\*986] through the Secretary of State. These "boards of examiners" were given authority to conduct hearings and, by a majority vote, to reverse the decision of the Commissioner of Patents in whole or in part. Their decision was to govern further proceedings.

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The procedure provided by the Act of 1836 proved to be cumbersome and the Commissioner of Patents recommended certain changes in it which were made by Congress in the Patent Act of March 3, 1839. This Act provided that instead of the arbitrators provided in the Act of 1836, an appeal would lay directly to the Chief Justice of the District Court of D.C. He was directed to hear and determine the appeal "on the evidence produced before the Commissioner."

The Act of March 2, 1861 further modified the plan of appeals by providing for an initial [\*\*\*67] appeal within the Patent Office. Section 2 of this Act provided a system of two appeals within the office, one from the examiner to a [\*\*951] board of three examiners-in-chief, and another appeal from this board to the Commissioner of Patents.

As pointed out by Mr. Federico in his article:

As a matter of fact this statute merely enacted into law and further developed a practice which had grown up, through necessity, over a period of years. There was an appeal to the Commissioner, and also a board of examiners, for some time before they appear in the law.

Mr. Federico also states:

Thus the Act of 1861 was only the culmination of the development which took place during the preceding years. The Act established by law by the board which had grown up in the Office and made it an appellate tribunal. At the same time a separate appeal from the board to the Commissioner was enacted. Previous to the Act the board in effect acted for the Commissioner in an appeal to him and a separate appeal from the board to the Commissioner did not exist except possibly as the Commissioner might personally reconsider a case.

The changed status of the examiners, as a result of the statutory [\*\*\*68] creation of the appeal from their decision should be noted.

Basically, this system of appeals remained in the law until it was further revised by the Act of 1927.

As early as 1870 there was a strong movement for abolishing the appeal to the judges outside the Patent Office. In his report for the year 1869, Commissioner of Patents Fisher summarized the case against what he termed the "now useless and mischievous" appeal to the courts. Mr. Federico sets forth in his article the case stated by Commissioner Fisher in the form of "ten counts." The "counts" pertinent to the present consideration are 2, 5 and 7 which read as follows:

2. There seems to be no propriety in a summary appeal from an executive to a judicial department; at all events, no such appeal is allowed from decisions of the Commissioner of Pensions, Internal Revenue, Land

Office, Indian Affairs, or the Comptrollers of the Treasury, notwithstanding the great pecuniary interests involved in their decisions, and the fact that in no one of those Bureaus [\*\*987] is such liberal provision made for appeals within the Office as in the Patent Office.

\* \* \*

5. The tendency of such a jurisdiction is to extend itself. [\*\*\*69] Accordingly the judges have every year encroached more and more upon the executive duties of the Commissioner. The law gave an appeal in a few cases. Appeals are not taken and sustained in many; until it is asserted that the judge, and not the Commissioner, is the head of the Patent Office, and that he is authorized to interfere and to overrule the Commissioner in any order or rule which the latter may make or attempt to execute.

\* \* \*

7. If it be said that these matters ought not to rest in the judgment of the Commissioner, the answer is:

a. He is selected because of his supposed familiarity with the business transacted in the Patent Office, and is, therefore, more likely to be right than the judge, who is appointed without reference to mechanical knowledge or learning in patent law.

b. The fear that the Commissioner might err, would demand a further provision for an appeal from the judge, and so on ad infinitum, since both are human.

c. The Commissioner of Patents ought to be as competent to decide questions arising in the conduct of his office as are the heads of other like departments; and

d. An appeal from the Commissioner is in fact provided, and would [\*\*\*70] exist, even if the present appeal were abolished; indeed, even the decision of the judge is not final. It is provided in sec. 10, act of March 3, 1839, [\*\*952] that the applicant may file a bill in equity in any circuit court having cognizance thereof, "where patents are refused for any reason whatever, either by the Commissioner of Patents or by the Chief Justice," and the complainant may obtain a decree authorizing the Commissioner to issue the patent.

It is interesting to inject at this point that the complaints thus voiced by Commissioner Fisher have not been stilled by the appeal procedure where actions of the Commissioner of Patents in refusing patents to applicants is subjected to an appellate review outside the Patent Office. Thus, Commissioner Fisher's theory that the Commissioner is "more likely to be right than a judge" can be said to be the philosophy which underlies the recently released report of The President's Commission on the Patent System. Section XIII contains the following:

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The Patent Office should be recognized as having technical and legal expertise, important in deciding questions of patentability. While a reviewing court certainly will have legal [\*\*\*71] expertise, and perhaps general technical knowledge, it seldom will possess the particular technical skill in the art with which a Patent Office examiner is equipped. Further, it is only after both the examiner and the Board of Appeals have concurred in the refusal of a claim that the matter comes before a reviewing court. Such concurrence should not be rejected by the court unless the action is, in its judgment, clearly erroneous.

This recommendation, should settle the conflict over "scope of review," by defining the court's responsibility to be review of the Patent Office decision, rather than substitution of its own judgment. The court would determine only whether the Patent Office had reasonable basis for its decision, not whether a different [\*988] decision logically could have been reached on the same record. The burden of persuasion would be on the applicant, and the Patent Office decision should not be reversed unless, in view of all of the evidence, the court has a thorough conviction that there was no reasonable basis for the decision.

Congress did not agree with the earlier critics of the appeal procedures and in the Act of July 8, 1870, retained an outside [\*\*\*72] appeal in ex parte cases and provided that the appeal be taken to the Court of the District of Columbia sitting en banc. It made no changes in the internal office appeal procedure.

The resultant appeal procedure became complicated, costly and time consuming and numerous studies were made prior to the Act of March 2, 1927. This Act made a major change in the Board of Appeals which, as outlined by Mr. Federico in his article, was:

Within the Patent Office the two appeals, to the Board of Examiners-in-chief and from the latter to the Commissioner, were replaced by a single appeal, this single appeal being to a Board of Appeals constituted by the Commissioner, the Assistant Commissioners, and the Examiners-in-Chief. This Board was empowered to hear appeals from the adverse actions of examiners upon applications for patents, and from decisions in interference cases. The act specifies that each appeal shall be heard by at least three members of the Board of Appeals.

From the foregoing, it seems that there has been an insistent public demand which Congress has recognized to provide for some type of independent appeal from the decisions of the Commissioner of Patents which demand [\*\*\*73] seems not to have been shared by all the Commissioners of Patents. Congress must have considered this public demand to be of importance to

have persisted in providing for independent appeals even in the face of criticisms such as those voiced by Commissioner Fisher.

One clearly detects in this recital of historical background the persistence of demand for independence of the tribunal designated to hear appeals from the decisions of the Commissioner of Patents [\*\*953] refusing patents to applicants. The concept of independence in such appeals even within the Patent Office is culminated and clearly articulated in the Act of March 2, 1927 which provided for presidential appointment of the examiners-in-chief, with the advice and consent of the Senate.

It is against this historical background that we must evaluate the meaning and impact of the terms used in 35 USC 7. To that end, I shall now consider the history of this provision.

#### History of 35 USC 7

Congress in enacting 35 USC 7 provided, as a matter of general policy, for a review of adverse decisions of examiners upon applications for patents, by a board of appeals consisting of the Commissioner, the assistant commissioners [\*\*\*74] and the examiners-in-chief and provided in this section that:

[\*989] The examiners-in-chief shall be persons of competent legal knowledge and scientific ability. The Commissioner, the assistant commissioners, and the examiners-in-chief shall constitute a Board of Appeals, which, on written appeal of the applicant, shall review adverse decisions of examiners upon applications for patents. Each appeal shall be heard by at least three members of the Board of Appeals, the members hearing such appeal to be designated by the Commissioner. The Board of Appeals has sole power to grant rehearings.

A reference to 35 USC 3 shows that each official thus named is an official "appointed by the President, by and with the advice and consent of the Senate." Beginning with the Act of March 2, 1927, Congress provided that boards of appeal must consist entirely of persons whose authority to act depended upon Presidential appointment and Senate confirmation, assuring an independent tribunal.

The first paragraph of section 7 has not been changed in substance since 1927. It therefore may properly be considered as stating the general policy of Congress in providing for an independent appellate [\*\*\*75] type of review within the Patent Office.

The second paragraph of section 7 is a newer provision and states an exception to the requirements of section 3. It concerns the appointment under special circumstances of acting examiners-in-chief without

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requiring Presidential appointment and Senate confirmation. Instead, such acting examiners-in-chief are to be designated by the Commissioner under the therein specially stated circumstances. This exception in par. 2 of section 7 thus gives the Commissioner limited authority to name acting examiners-in-chief and limits the use he may make of them in designating particular panels of the Board of Appeals. It becomes necessary, therefore, to examine the history and background of this second paragraph of section 7 to determine whether Congress intended the exception therein stated to take precedence over and change the long standing general plan of independent appellate review we find clearly stated in paragraph 1 of section 7.

The exception provided in par. 2 of present section 7 first appeared in 1945 in H.R. 4080, 79th Cong., 1st Sess. H.R. Rep. No. 1030, 79th Cong., 1st Sess., p. 1, stated the purpose of the bill as follows:

The [\*\*\*76] purpose of this bill is to increase the size of the Patent Office Board of Appeals by empowering the Commissioner of Patents to designate from time to time, or at any time, one or more primary examiners or law examiners of that office to serve as examiners in chief for periods of time not exceeding 30 days in any calendar year.

In support of the bill, after noting the increased number of appeals to the board, the following appears in H.R. Rep. No. 1030, at p. 2:

By reason of their training and experience, principal examiners and law examiners are peculiarly fitted to serve as examiners in chief. \* \* \* Also, it is believed that their services on the Board will provide opportunities for [\*\*954] them to gain wider knowledge of the practices obtaining in divisions of the Patent Office other than their own, and of the arts and sciences generally as they [\*990] develop and are exemplified in pending applications for patents, as well as opportunities for them to demonstrate their abilities for future appointments as full examiners in chief.

The pertinent portion of the bill reads:

Provided, That the primary examiners and the law examiners of the Patent Office shall be [\*\*\*77] authorized to serve as examiners in chief, but no such examiner shall so serve for more than thirty days in any calendar year and then only by direction of the Commissioner of Patents.

The above bill, after passing the House of Representatives, was sent to the Senate where the bill was amended to read as follows:

That notwithstanding the provisions of section 476 of the Revised Statutes (U.S.C., title 35, sec. 2), the

Commissioner of Patents is authorized to designate examiners of the principal examiner grade or higher, having the requisite ability, to serve as examiners in chief and such examiners so designated shall be fully qualified to act as members of the board of appeals constituted by section 482 of the Revised Statutes (U.S.C., title 35, sec. 7): Provided, That no such examiner shall so serve for more than ninety days in any calendar year: And provided further, That not more than one such examiner shall be among the members of the board of appeals hearing an appeal.

Sec. 2. This Act shall take effect on the date of approval and shall expire three years after such date.

S. Rep. No. 1101, 79th Cong., 2nd Sess., repeated the above statements in H.R. 1030 and expressly [\*\*\*78] stated, at p. 2:

\* \* \* Cases are heard by three members of the Board of Appeals and the amended measure provides that not more than one of these shall be a designated examiner.

The above amended bill was subsequently passed by both the Senate and the House of Representatives. See Conf. Rep. No. 2695, 79th Cong., 2nd Sess. (1946).

It is clear from the above, and neither party argues otherwise, that under the above law Congress gave the Commissioner the authority to place only one examiner-in-chief designated by him under the exception to R.S. 476 (35 USC 2) on any given board of appeals.

The limited nature of the first exception to section 7 is readily apparent. It was of temporary duration and designed to help eliminate the backlog of appeals to the board. Each acting examiner-in-chief was limited as to his period of service and required to sit with two regular board members. Each board hearing an appeal contained a majority of members whose designation was independent of the Commissioner's authority. The policy of an independent review in the Patent Office was preserved.

The above law (60 Stat. 873, 35 USC 7) expired on August 7, 1949. In the same year S. 1172, [\*\*\*79] 81st Cong., 1st Sess., was introduced. This bill provided for a permanent increase in the number of examiners-in-chief without providing for designated examiners-in-chief. After passing the Senate, the bill was amended in the House of Representatives [\*991] to provide for designated examiners-in-chief. The finally enacted provision stated:

Section 482 of the Revised Statutes (35 U.S.C. 7) is amended by adding the following paragraph:

"The Commissioner, when in his discretion considered necessary to maintain the work of the board of appeals current, may designate any examiners of the

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primary examiner grade or higher, having the requisite ability, to serve as examiner in chief for periods not exceeding six months each, and any examiner so designated shall be qualified to act as a member of the board [\*\*955] of appeals. Not more than one primary examiner shall be among the members of the board of appeals hearing an appeal."

This bill was approved March 4, 1950.

H.R. Rep. No. 1617, 81st Cong., 2nd Sess., stated that the purpose of the amendment was to allow the Commissioner to designate examiners-in-chief "from time to time until the appellate work is current and [\*\*\*80] then discontinue the temporary designations." The report also contained the supporting reasons offered with respect to the previous act, quoted supra.

There is no evidence of any indication that Congress intended to change the previous law. The Senate Bill did not provide for designated examiners-in-chief and the House added the provision by amendment, referring to the temporary act passed in 1946. However, whereas the previous law stated only "one such examiner" could serve on a board, the 1950 law stated "not more than one primary examiner" could serve on a board.

In 1952, 35 USC 7 was enacted. The language in para. 2 was changed to provide that "not more than one such primary examiner" may serve on a board. The preliminary draft did not provide for designated examiners-in-chief. See Proposed Revision and Amendment of the Patent Laws, Preliminary Draft, Comm. on the H.R. Judiciary 4 (1950). In H.R. 9133, 81st Cong., 2nd Sess., it was provided that the Commissioner could designate examiners-in-chief "of the grade GS-13 or higher" and "not more than one such GS-13 grade examiner shall" be on a board. In H.R. 3760, 82nd Cong., 1st Sess., the second bill introduced into [\*\*\*81] Congress, the language was changed to that presently appearing in section 7. H.R. Rep. No. 1923, 82nd Cong., 2nd Sess. and S. Rep. No. 1979, 82nd Cong., 2nd Sess., commenting on H.R. 7794, 82nd Cong., 2nd Sess., the third bill introduced into Congress, each state that "some changes in language have been made" in section 7. Thus, independent research fails to reveal anything of a definitive nature that Congress intended, except as above pointed out, to change the legal effect of the exception provided in the second paragraph of section 7.

The final legislation concerning section 7 originated in 1958 and 1959. In 1958, S. 1864, 85th Cong., 1st Sess., was introduced which [\*992] expanded the number of permanent board members from nine to not more than fifteen and also established a new compensation rate for certain Patent Office officials. Concerning the proposed increase in board members in

view of the increased number of appeals to the board, H.R. Rep. No. 2557, 85th Cong., 1st Sess., states:

\* \* \* With this increase [in appeals], it will be necessary not only to continue the practice of designating other examiners to serve temporary tours of duty on the Board of Appeals [\*\*\*82] but also to increase the number so serving. While this measure is highly desirable as a means of adjusting manpower to take care of peak periods of fluctuating workload, it is felt that there should not be such a large number of temporary members. One reason is that these men are removed from their other duties, which disadvantageously affects the work of examination in the divisions from which they are drawn, and of course temporary members could not be as efficient as those serving permanently. It is accordingly proposed that the permanent members of the Board of Appeals be increased by not more than 6, raising the number from 9 to not more than 15. While the data submitted above shows that 15 members may not be sufficient to carry on the work of the Board of Appeals at the present increased level of the filing of appeals, a membership of 15 permanent members will reduce considerably the number of temporary members which need [\*\*956] to be assigned, and will allow for the possibility that when the task of reducing the backlog of applications pending before the examiners is accomplished the number of appeals filed may decrease to such an extent as to be capable of being handled [\*\*\*83] by them alone, with possibly only an occasional temporary designation. The bill is so worded that the total number of 15 need not be filled when the workload so warrants.

The provision relating to temporary designations is retained since this is very useful for occasional assistance and also provided a means of testing prospective new members.\* \* \*

Concerning the salary increase the report states:

\* \* \* Appointments to these positions are recommended by the President and confirmed by the Senate. The duties and responsibilities combined with executive appointment requirements of these positions indicate that salaries in excess of those provided for career civil service employees are appropriate. Further justification for the salaries proposed in the bill is that these positions are unique among professional positions in Government in that they require the combination of the highest level, judicial and scientific attainment for the proper discharge of the responsibilities assigned to them by statute.

The quasi-judicial duties of the members of the Board of Appeals are the most difficult and exacting in the Patent Office. It is required by law that the examiners in chief [\*\*\*84] be scientifically competent

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and trained in law. Their work has unusually great significance and importance in the technological and industrial development of this Nation. \* \* \*

Of further interest are the comments of Congressman Libonati n1 made in the House concerning the above bill, 104 Cong. Rec., Part 15, at 19,199:

n1 Roland V. Libonati of Illinois, at the time a ranking member of the House Judiciary Committee.

Members, three in number, sit as a panel, hearing both oral and written argument. The panel studies the brief and arguments, rendering its decision. No [\*993] more than one designated member can sit on a panel. One writes the decision - speaks with the second, then submits to the third person on the panel. This takes a great deal of time with much detail and extended delays. They have the last word - appeals are then taken to the Court of Customs and Patent Appeals and by suit de nova [sic] can be taken to the District Court of the United States for the District of Columbia.

This is a difficult work and the reputation of the Board must enjoy the highest reputation for personal integrity and judicial honesty in an office of first importance in [\*\*\*85] the economy of the Nation. It enjoys the highest kind of confidences and secrets. The finest legal minds of international reputation practice before this tribunal. [Emphasis added.]

The basis for Congressman Libonati's statement that "No more than one designated member can sit on a panel," is found in the testimony of Robert C. Watson, then Commissioner of Patents, who testified before the House Judiciary Subcommittee No. 3, on July 30, 1958. Commissioner Watson was asked to spell out the appeal procedure in the Patent Office, including the selection of panels. Commissioner Watson stated that at that time 9 regular members and 10 designated members constituted the class from which panels were selected. He explained that the panel is comprised of 2 regular members and one designated member and expressly pointed out that he could not appoint 2 designated members to serve on a panel of 3. Mr. Sam W. Kingsley, then Personnel Officer of the Patent Office, and Mr. Leo P. McCann, [\*\*957] an examiner-in-chief of the board, who also testified, elaborated further as to the necessity of increasing the number of permanent examiners-in-chief.

Commissioner Watson's testimony is [\*\*\*86] reflected in H.R. 2557, supra, wherein figures are set forth indicating the number of persons acting as board members from 1950 through 1957. The figures range from a high of 20.4 (1958) to a low 11.0 (1954). The

report states "The number of men serving on patent appeal work during this period averaged 15 per year."

In 1959 a salary bill concerning regular and designated examiners-in-chief was introduced, S. 1845, 86th Cong., 1st Sess., amending section 7. H.R. Rep. No. 1138, 86th Cong., 1st Sess., states in part:

A member of the Board of Appeals reviews appealed patent cases in any category of the sciences and technological arts which may involve claims where competent definitions of the exact contribution to the art are exceptionally difficult to make. His decisions may involve highly complicated matters, including interpretations of a very advanced, technical character relating to the latest developments in the diverse fields of mechanics, electricity, electronics, chemistry, electrochemistry, physics, atomic physics, drugs, etc. His decisions require exceptional knowledge of, and seasoned experience with, legal precedents, prior decisions of the Board, decisions of the [\*\*\*87] U.S. Court of Customs and Patent Appeals, and decisions of the other Federal courts.

\* \* \*

[\*994] A study of the duties and responsibilities required of examiners-in-chief, together with the high professional qualification requirements for their executive appointment to those positions, serve to accentuate the inadequacy of Classification Act salaries of only \$13,970. The quasi-judicial duties of the members of the Board of Appeals are the most difficult and exacting in the Patent Office. It is required that to be eligible for appointment, examiners-in-chief be scientifically competent and trained in the law. Few of the career employees possessing this combination of professional abilities also possess the high level of judicial judgment required for successful performance of the scientific and legal decisions required of them. Recommendations to the President for appointments of new members to the Board are made only after temporary detail assignments to determine the professional competence of the proposed appointee. [Emphasis added.]

There can be no question about the need for temporary or acting examiners-in-chief and the practical reality of having them appointed [\*\*\*88] by the Commissioner when the circumstances are such as to require such appointment.

The basic issue here posed, however, is whether in providing for such temporary or acting examiners-in-chief, the meaning of the statute permits the Commissioner to erode its basic concept of an independent quasi-judicial review of his decisions. The practical operation of the system since the Commissioner

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was given this authority has been observed by Clesner and Clesner in their article, *The Board of Appeals of the Patent Office* - 40 J.P.O.S. 298 (1958), stating:

\* \* \* Due to the heavy workload there have been instances of primary examiners serving as acting examiners-in-chief for four out of five years. At present the Board consists of more acting members than appointed members. This defeats the intent of judicial independence the Board may possess from its members being presidential appointees for life. [Emphasis added.]

The above is all the available information I have found as to the intent of Congress concerning designated examiners-in-chief and the uses to be made of them. In summary, it seems clear that Congress regarded designated examiners-in-chief [\*\*958] as a temporary measure [\*\*\*89] to reduce the backlog of appeals and, as such, regarded them to be an exception to the general provisions governing appointments of examiners-in-chief under 35 USC 3 and the composition of regular boards of appeal under the first paragraph of 35 USC 7. It also appears that Congress considered that examiners-in-chief designated by the Commissioner should be utilized only when a backlog existed and that this practice would cease when the regularly appointed examiners-in-chief could cope with the appeal load. These considerations underlie all the amendments proposed to present section 7 and clearly indicate that the second paragraph of section 7 is but an exception to section 3 and to the first paragraph of section 7. Congress also appears to have been of the view, since the inception of the provision permitting the Commissioner to designate examiners-in-chief, that not all patent examiners of the primary grade or higher would be suitably qualified to [\*995] serve as examiners-in-chief and this, I think, emphasizes the significance of the Congressional enactment of the second paragraph of section 7 which places very definite limitations on the extent of the Commissioner's authority [\*\*\*90] to use his designated examiners-in-chief on boards of appeal. In addition to the need for eliminating the Patent Office appeal backlog, the stated purpose for utilizing designated examiners-in-chief also appears to have been as a "trying-out," or probationary period, as it were, to ascertain which of the examiners so serving were suitable for further consideration for Presidential appointment as regularly appointed examiners-in-chief. Congress clearly recognized that the duties of an examiner-in-chief was quasi-judicial in nature; that examiners-in-chief must be scientifically competent and trained in the law; and that appointments of new members to the board can best be made after service of the prospective appointee as a temporarily designated examiner-in-chief during which time an evaluation may be made of the professional competence of the proposed appointee. The ultimate responsibility for decision of

appeals was, I think, to be vested in those examiners-in-chief whose authority to act was delegated to them by reason of Presidential appointment, and who were thus independent of the Commissioner as the source of their power and authority to act. It seems equally clear that [\*\*\*91] the statute cannot mean that a majority or all of the members of any board of appeals should consist of examiners-in-chief designated by the Commissioner.

All the internal evidence and policy considerations in the foregoing seem to me to clearly establish that Congress did not intend to sanction any scheme of authorizing boards, a majority of whose members were examiners-in-chief designated by the Commissioner. It also seems clear to me that the changes in language made in section 7 do not permit more than one "primary examiner" acting by designation as an examiner-in-chief to serve on any one board.

I shall now consider Assistant Commissioner Reynolds' interpretation of the statute under which any number of examiners-in-chief, acting by designation of the Commissioner, may act on a given board so long as not more than one of them is of primary examiner grade. I shall first consider the statutes. As above set forth, it seems clear that in 1946 Congress intended and provided that but one designated examiner-in-chief could act on any given board of appeals panel. The 1950 provision for designated examiners-in-chief was added by amendment in the House to a Senate sponsored bill [\*\*\*92] without any discussion as to whether a change in law was contemplated. Only a literal reading of the 1950 law in a vacuum supports the conclusion underlying Assistant Commissioner Reynolds' decision that Congress reversed its policy and so changed the limitation that it applied only to "primary examiners" designated as examiners-in-chief and did not apply [\*996] if the designated examiner-in-chief had a grade "higher" than the primary examiner [\*\*959] grade. I cannot agree with Assistant Commissioner Reynolds that Congress intended to so change this limitation in the statute. To do so requires one to ignore and negate the contrary expressions of Congress in 1952 and 1958-59.

In 1952, Congress first employed the expression "such primary examiner" in the statute. I have not been able to ascertain whether such change was made as a "change in English" or whether that phrase was meant to include as a class examiners-in-chief designated by the Commissioner from "primary examiner grade or higher."

The Revisor's note refers to the changes made as "some changes in language" and does not suggest that any substantive changes were made in the section.

One thing which appears [\*\*\*93] clearly is that Congress at all times has considered designated examiners-in-chief, as a class, to be a temporary

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expedient utilizing persons of unproven ability and its recognition that many of them, regardless of grade, might be unqualified for Presidential appointment under section 3 as examiners-in-chief.

I shall next consider the precedents which exist as to the construction of section 7. In *Ex parte Beyerstedt*, 103 USPQ 189 (Bd. App. 1952) the board held that section 7 only prohibited more than one primary examiner designated as an examiner-in-chief from acting on a board. This decision arose under the terms of the 1950 law and the opinion of the board does not reveal any investigation as to congressional policy or intent. The decision was joined by two designated examiners-in-chief, with the regular board member writing the opinion.

I also note some forty decisions cited by the solicitor in his brief wherein two designated members sat on the board. No challenge as to the validity of the board was made in those cases. The solicitor argues:

It is submitted that, since the construction of a statute by an agency charged with its administration is ordinarily given great [\*\*\*94] weight - *U.S. v. Amer. Trucking Asso.* 310 U.S. 534 -, no reason exists for disagreeing with or modifying the interpretation placed upon the statute by the Patent Office, as exemplified by the Commissioner's decision in the involved application.  
\*\*\*

In *American Trucking* the Supreme Court agreed with the Interstate Commerce Commission's decision that its authority under the statute was limited to securing safety of operation. In answer to arguments urging an opposite construction, the court's opinion states, concerning legislative intent, "in fact the evidence points the other way." 310 U.S. at 548. Here, we are presented with an attempt to expand authority, in face of conflicting evidence and statutory limitations, by the construction placed on the statute by Assistant Commissioner Reynolds. Moreover, we are not bound by previous exercises of jurisdiction [\*997] in cases in which power to act was not questioned. *Brown Shoe Co. v. United States*, 370 U.S. 294, 307, 363 (1962).

The solicitor also argues that to hold the board to be improperly constituted would "cast a cloud" upon patents resulting from decisions of other boards similarly constituted. This consequence is at [\*\*\*95] best argumentative and no authorities have been cited for our consideration in determining whether it is relevant to the issue of jurisdiction. As stated earlier, we are here dealing with an issue of jurisdiction as to which we have no choice but to consider this issue. The ultimate consequence of the decisions of such illegally constituted boards is the responsibility of the Commissioner, whose acts gave rise to the problem.

On the question of the effect of a finding of lack of jurisdiction in relation to previous judgments and decisions certain guidelines are found in *Chicot County Dist. v. Baxter State Bank*, 308 U.S. 371 [\*\*960] (1940). The Supreme Court had previously declared a jurisdictional statute under which the district court had acted to be unconstitutional. *Ashton v. Cameron County Dist.*, 298 U.S. 513 (1936). In *Chicot* it refused to set aside a final judgment and decision rendered before the statute was held unconstitutional. While district courts were without jurisdiction to entertain such matters after *Ashton*, all judgments which had become final before *Ashton* were binding on all parties and not subject to collateral attack. Viewed in retrospect, the district [\*\*\*96] court did not have jurisdiction but the court stated, after extensive analysis, "The past cannot always be erased by a new judicial declaration." 308 U.S. at 374. Previous judgments were thus valid.

The solicitor urges that the designation of boards is a matter of "discretion." However, in *Fed. Trade Comm. v. Raladam Co.*, 283 U.S. 643, 649 (1931) the Supreme Court stated:

\* \* \* Official powers cannot be extended beyond the terms and necessary implications of the grant. If broader powers be desirable they must be conferred by Congress. They cannot be merely assumed by administrative officers; nor can they be created by the courts in the proper exercise of their judicial functions.

We cannot ignore or merely pay lip service to the fact that examiners-in-chief are appointed by the President with the advice and consent of the Senate and that they must be selected from a class of persons having competent legal knowledge and scientific ability. Compare *Ramspeck v. Trial Examiners Conf.*, 345 U.S. 128 (1953); *United States v. L. A. Tucker Truck Lines, Inc.*, 344 U.S. 33 (1952).

The safeguards which Congress enacted to insure an independent quasi-judicial type of review by the Board [\*\*\*97] of Appeals must not be ignored. To do so is to legislate by administrative or judicial fiat and this is not a legitimate function either of the Commissioner of Patents or of this court. Pursued to its logical conclusion, the Commissioner's interpretation of the second paragraph of 35 USC 7 could [\*998] create boards of appeal composed entirely of examiners-in-chief designated by the Commissioner of Patents. The only limitation, according to the Commissioner's interpretation, is that not more than one of the so designated examiners-in-chief be of a "primary examiner" grade. It is significant, I think, that the designation of an examiner as "primary examiner" or title of higher grade is determined by the administrative regulations of the Patent Office. The particular name given from time to time to the functions

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of the members of the examining corps has been determined by the Commissioner by appropriate administrative order. Acting examiners-in-chief under the Commissioner's interpretation could be designated from any class of examiners having a title which suggests that they may have a grade higher than the primary examiner grade. Under the decision of Assistant Commissioner [\*\*\*98] Reynolds a valid board of appeals could be composed of persons having little more expertise than a primary examiner so long as they have a "higher" grade. This could be in name only and perhaps be but remotely associated with the functions and skills required of one who becomes an examiner-in-chief by Presidential appointment. Entire boards could be selected from these "higher" classes of designated examiners-in-chief whose sole authority to act is derived from the Commissioner. What then becomes of the concept that the appeal in the Patent Office should be decided by boards, a majority of whose members are authorized to act by reason of Presidential appointment and Senate confirmation? Throughout the legislative history pertinent to the exception expressed in section 7 it is evident that Congress intended to provide an independent appeal and to this end provided [\*\*961] that not more than one examiner of primary grade could be designated on a given panel. The reasons are apparent. The primary examiner has the lowest level of experience and perhaps of expertise of those qualified to serve on the Board of Appeals. Since the appeal is taken from a decision made by another [\*\*\*99] primary examiner it seems both reasonable and logical to require that the appeal board be composed of a majority of members whose qualifications

to so act have been determined by the President with the advice and consent of the Senate and who may act independently of the Commissioner. Manifestly, wherein lies an independent review if a majority or the whole of the board lacks expertise, are acting on a trial basis and under the close scrutiny of the Commissioner, and are but a step removed or equal to the title of the person whose decision is under review? Independent review by superiors with expertise is in effect lost. I think the basic requirements of an independent appellate review simply would not be met under the interpretation here advanced by Assistant Commissioner Reynolds in upholding the legality of the board here in question. Further, under his interpretation, the limited [\*999] authority now vested in the Commissioner would be extended beyond anything I have been able to ascertain was intended by Congress. In fact, my view is that it is contrary to the intent demonstrated.

Finding as I do on the record before us that the board below was improperly constituted [\*\*\*100] in violation of the second paragraph of 35 USC 7, I would find that no valid decision was rendered on appellant's appeal from the decision of the primary examiner. The purported decision entered by the board in this case is a legal nullity. It seems to me, therefore, to be our clear duty to dismiss the appeal for we are lacking in jurisdiction to proceed to a consideration of such a decision. Ayrshire Collieries Corp. v. United States, 331 U.S. 132, 144 (1947).

I would, therefore, dismiss the appeal.

LEXSEE 2 USPQ2D 1460

Ex parte Yohnosuke Ohsaka and Heikitsu Sonoyama

Appeal No. 635-04 from Art Unit 124.

Application for Patent filed September 2, 1980, Serial No. 414,045. Process For  
Preparing Chlorotrifluoromethylbenzene.

Board of Patent Appeals and Interferences

1987 Pat. App. LEXIS 22; 2 U.S.P.Q.2D (BNA) 1460

March 23, 1987, Heard  
March 31, 1987, Decided

[\*1]

Before Winters, Tarring and Emery, Examiners-in-Chief.

**COUNSEL:**

Leonard R. Svensson et al for appellants.

Primary Examiner - Charles F. Warren

Examiner - J. Boska.

**OPINION BY: WINTERS**

**OPINION:**

Winters, Examiner-in-Chief.

Appeal from the examiner's decision refusing to allow claims 1, 2 and 7 through 13. Claims 3 through 6, which are the only other claims remaining in this application, stand withdrawn from further consideration by the examiner.

Claims 1 and 2 are representative:

1. A process for preparing chlorotrifluoromethylbenzene which comprises reacting chlorotoluene, hydrogen fluoride and chlorine in a gaseous phase in the presence of a catalyst selected from the group consisting of alpha-aluminum fluoride, alpha-aluminum fluoride carrying one or more salts of iron, bismuth, tin and lead, and chromium (III) oxide or partially fluorinated chromium (III) oxide carrying alkali metal fluoride.

2. The process according to claim 1, wherein the catalyst is alpha-aluminum fluoride.

The prior art references of record relied on by the examiner are:

Petit et al. (Petit)	3,187,060	Jun. 1, 1965
Mitchell, III (Mitchell)	4,012,337	Mar. 15, 1977
Ohsaka	4,242,286	Dec. 30, 1980
Nakagawa et al. (Nakagawa)	4,365,101	Dec. 21, 1982
Hiramatsu et al. (Hiramatsu)	4,367,350	Jan. 4, 1983

[\*2]

The issue presented for review is whether the examiner correctly rejected claims 1, 2 and 7 through 13 under 35 USC 103 as unpatentable over Hiramatsu in view of Ohsaka, Nakagawa, Petit, and Mitchell.

#### OPINION

We shall not sustain this rejection.

Initially, we note from a review of Paper No. 3 mailed May 10, 1983, that the examiner here required the appellants "to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable." See Paper No. 3, page 3. The appellants, in turn, elected the catalyst species alpha-aluminum fluoride. Instant claims 1 and 7 through 13 embrace the use of alpha-aluminum fluoride in appellants' claimed process, whereas instant claim 2 is specifically limited to a process using that catalyst species. As appellants point out in their main Brief before us, "[t]he rejections of record and now on appeal are specifically directed to the applicants' elected species and prosecution on the merits has not been expanded to the other species encompassed by applicants' generic claims". See the main Brief, page 7.

Otherwise stated, the specific issue presented for review [\*3] is whether appellants' claimed process, conducted in the presence of alpha-aluminum fluoride catalyst, would have been obvious within the meaning of 35 USC 103 in view of the prior art references cited and relied on by the examiner. We discuss that single issue infra, and we take no position respecting the patentability of appellants' claimed process conducted in the presence of the remaining, non-elected species.

Whereas the examiner cited and relied on five prior art references, Hiramatsu and Ohsaka clearly represent the closest prior art in this case. Hiramatsu discloses the same gaseous phase fluorination process claimed by appellants, except that Hiramatsu conducts his process in the absence of a catalyst. Ohsaka, on the other hand, relates to a catalytic process. Specifically, Ohsaka discloses the reaction of benzotrichloride or its derivatives with hydrogen fluoride in a gaseous phase in the presence of aluminum fluoride as a catalyst. Respecting the aluminum fluoride catalyst, Ohsaka states

The aluminum fluoride used as the catalyst in the process of the invention may be produced by any conventional procedure. There is no limitation on its crystalline form. In [\*4] general, beta-aluminum fluoride or gamma-aluminum fluoride, or their mixture is favorably used.

See Ohsaka, column 2, lines 35 through 40. The working examples disclosed by Ohsaka are all conducted in the presence of a mixture of beta-aluminum fluoride and gamma-aluminum fluoride.

The remaining references relied on by the examiner, namely, Nakagawa, Petit, and Mitchell, do not add to the teachings of Hiramatsu and Ohsaka. This follows because: (1) the particular reaction disclosed by Nakagawa is conducted in the absence of a catalyst, and (2) the catalytic reactions disclosed by Petit and Mitchell (the former relating to hydrofluorination of acetylenic hydrocarbons and the latter relating to reforming reactions) are clearly more remote from the gaseous fluorination reaction disclosed by Hiramatsu than is the reaction disclosed by Ohsaka.

From the foregoing we conclude that if the examiner established a prima facie case of obviousness of claims 1, 2 and 7 through 13, then his case is best founded on and expressed in terms of the combined teachings of Hiramatsu and Ohsaka. However, we find it unnecessary to decide whether the examiner did, in fact, establish a prima [\*5] facie case. Assuming arguendo, without deciding, that he did, we conclude that (1) appellants' rebuttal evidence of record establishes unexpectedly superior results possessed by alpha-aluminum fluoride when used in the claimed process, and (2) the rebuttal evidence establishes that appellants' claimed process, when considered as a whole, would have been non-obvious within the meaning of 35 USC 103.

More specifically, we have reviewed appellants' "indirect comparison" between the use of alpha-aluminum fluoride in Example 1 of their specification and beta, gamma-aluminum fluoride in the Ohsaka declaration, Paper No. 7 filed August 9, 1984. See *In re Fenn*, 639 F.2d 762, 208 USPQ 470 (CCPA 1981). This comparison between the claimed invention and the closest prior art shows that, unexpectedly, the claimed process using alpha-aluminum fluoride provides substantially increased yields of desired product and relatively small amounts of undesirable by-products. On the contrary, when beta, gamma-aluminum fluoride is used, the result is substantially decreased yields of desired product and relatively high amounts of undesirable by-products. Such results could not have been predicted [\*6] from the Ohsaka reference of record, which discloses different crystalline forms of aluminum fluoride but provides no basis for a person having ordinary skill in the art to expect superior results from the use of the alpha-crystalline form. Nor could the results shown by appellants have been predicted from any of the prior art references relied on by the examiner.

In addressing the Ohsaka declaration, the examiner states that

the declaration was carefully considered as well as appellants' arguments and was and is held unconvincing [sic] of unobviousness of the present process for the reasons given in support of the conclusion of obviousness. Any results appellants obtain are inherent in the clearly obvious use of alpha-aluminum fluoride as claimed, optimization thereof being well within the [sic] expected ability of one of ordinary skill in the art. See the Examiner's Answer, pages 5 and 6. The flaw with this approach is that the examiner has, in practical effect, converted a rebuttable presumption into a conclusive or irrebuttal presumption of obviousness. The examiner incorrectly reverts to his initial conclusion of obviousness, finding the declaration evidence unconvincing [\*7] "for the reasons given in support of the [initial] conclusion". Moreover, we note the examiner's assertion that the declaration results are "inherent" in the use of alpha-aluminum fluoride. The examiner does not assert, nor would he have basis on this record to assert, that the superior results obtained by using alpha-aluminum fluoride and shown in the Ohsaka declaration are expected. The rejection here is based on section 103 and appellants are entitled, if they choose, to file and rely on rebuttal evidence. As stated in In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976), "[w]hen prima facie obviousness is established and evidence is submitted in rebuttal, the decision-maker must start over . . . An earlier decision should not, as it was here, be considered as set in concrete". Again, as stated in In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984) "the examiner must consider all of the evidence anew".

The examiner's decision refusing to allow claims 1, 2 and 7 through 13 is reversed.

REVERSED.

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